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☞ NOTICE.—*The Laboratory*, heretofore published in Boston, has been discontinued, and its list of subscribers transferred to NEW REMEDIES. Thus, with its already large subscription patronage, its steadily and rapidly increasing regular circulation, and its established reputation, NEW REMEDIES claims to have no equal in the United States as an advertising medium for chemists and druggists, and dealers in any of the great variety of articles usually sold by the drug trade.

QUOTATIONS from NEW REMEDIES in other journals are becoming very frequent, a compliment which would be more appreciated if credit was given as freely.

WE are pleased to observe that the example of this journal, in publishing something new and original on the soda-water question, is having its effect upon other drug journals. No reference, however, is made by them to NEW REMEDIES.

THOSE who receive specimen copies this month will please observe the following special features, to be found ONLY IN NEW REMEDIES, viz.: Full page plates, plain and colored; wood engravings, profusely illustrating every No.; résumé each month of all articles in other journals of interest to the drug trade; Trade Notes and Novelties; Patents and Laws, of interest to, and affecting the drug trade. The most complete Prices Current, in addition to which attention is respectfully directed to the departments of Materia Medica, of Pharmacy, and of Therapeutics, to the Drug Market Report, to the Prescriptions and Formulæ, Notes and Queries, etc., etc.

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EDITORIAL.

SINCE its commencement in 1851, the American Pharmaceutical Association has become one of the most creditable scientific organizations to which this country can lay claim. From year to year the character of its meetings has improved coincidently with the advances which have been made in pharmacy, and its published proceedings have become as highly esteemed as the most valued works in pharmaceutical literature.

Like the science and art, which it both represents and encourages, it is not altogether limited by political and geographical boundaries, and its approaching meeting in a Canadian city will undoubtedly prove as eminently profitable in all respects as former ones have been in more central localities.

No small proportion of the success which has attended the career of the Association is owing to the forethought and business capacity of those who have been elected to hold office; and there is little that remains to be suggested, in the way of improvement in the mode of conducting the meetings, that has not already been foreseen and provided for. One plan, however, has lately been adopted by a number of scientific societies, which has largely increased the interest taken in their meetings, as well as effected a considerable improvement in the character of the work performed and the rapidity with which it has been disposed of, and we take the liberty of suggesting its trial by the united pharmacists. It is the publication, a short time before the meeting, of a schedule of papers to be read, reports to be presented, and general business to be transacted—assigning, as near as may be, the time for each.

There are few persons, however good their general information may be, who can be prepared, without previous notice, to discuss subjects about which they may be practically familiar. The American Pharmaceutical Association is especially fortunate in having an unusual number of exceptions to this rule. For this reason its members may not appreciate how much may be lost while they are listening to others whose wisdom and fluent delivery have so well fitted them to participate in discussions. It is a short-sighted policy which does not take into consideration the success of future meetings; and since freedom of speech comes quite as much from practice as from

inherent talent, it is worth the while to offer the younger and less confident members every advantage that can reasonably be given them.

It is true that we sometimes suffer from the infliction of speakers who talk for no better reason, apparently, than the love of oratory, and no one can be less disposed than we are to increase the opportunities at present enjoyed by this class; but do we not also sometimes see speakers in scientific gatherings, who, instead of wanting to say *something*, *have* something to say, but, in the embarrassment of talking to a roomful of people on a subject regarding which they have had no opportunity to arrange their thoughts, hesitate for words, mix their sentences, lose track of the leading points of the question, and consume more valuable time in extricating themselves from dilemmas than in expressing ideas. A few weeks, or even days, of time during which to think over the subject and elaborate their ideas, would make all the difference with such speakers, while, on the other hand, the loquacious member, with a knowledge of other important matters to come, might restrain his flow of words.

On page 255 we publish the programme laid out by the Secretary of the American Pharmaceutical Association, which should induce a considerable number of visitors from the States to start early and reaching the rendezvous at Watkins' Glen, enjoy a visit to a spot well known for its remarkable scenery. In addition to the features of the meeting mentioned in the notice referred to, the programme, according to the *Canadian Pharmaceutical Journal*, is to include a reception at the Toronto Normal School Building, on the evening of Wednesday, September 6th. The Minister of Education has kindly placed the entire building at the disposal of the Canadian Pharmaceutical Council. Dr. May promises his aid with scientific experiments. Microscopes and specimens have been offered, and music and refreshments will be provided in an adjoining building. The druggists of Ontario, with their wives and daughters, are expected to be present, and an enjoyable evening is in prospect.

It has also been suggested that an excursion, in the shape of the establishment of one or more camps at some good fishing ground, should follow the meeting, and any one wishing to join is directed to apply to the local secretary. If possible, a ladies' camp will also be organized.

Let the despondent apothecary take heart, for there is one place on this broad continent where the combined talent of the medical profession ingloriously acknowledges his power. In the announcement of a new medical college in the valley of the Maumee (famed in song for small potatoes), the faculty gravely announce, among the reasons why that locality is absolutely in need of a medical college, as follows:

"A want has long been felt of a class of men to intercede between the druggist and the patient, to see that the latter really receives what the physician desires he should have. There is no class of men upon whom duty and interest combine so decidedly to enjoin such service, as upon the medical profession," etc., etc.

Shades of Hippocrates defend us!

The most important question which just now agitates the minds of persons interested in the manufacture and sale of drugs and chemicals in this country, is the effort being made to bring about the abolition of the present tariff on chemicals, drugs, dyes, dye-stuffs, oils, seeds, herbs, and medicines.

Already a number of the medical societies throughout the country have endorsed the "Morrison Bill," as it is called, so far as it relates to the cinchona alkaloids; but, compared with the other interests involved, this is of minor importance.

At a recent meeting of the Manufacturing Chemists' Association of the United States, a number of resolutions were adopted, in the course of which it was demanded that any general policy of the government, whatever it may be, shall be made to apply to them, as to other manufacturers.

A reference to page 157 of our May number will show that at present all crude drugs, acids for manufacturing purposes, and natural mineral waters are admitted free, and that the amount paid on dutiable goods varies from 10 per cent. on acids for medicinal use, to 40 per cent. on pharmaceutical preparations, and 50 per cent. on proprietary medicines.

There are few drugs which can be made use of without undergoing some process of manufacture, and the result is that the sick man pays indirectly a tariff on almost all articles of medicine consumed by him. This, however, is likewise the case with almost every article of daily consumption; and the argument of the manufacturers of chemicals and medicines, that there would be no justice in protecting other industries and leaving

them alone to compete in open market with foreign manufacturers, is to our minds irrefutable.

The fact that three establishments separate most, if not quite all of the cinchona alkaloids which are manufactured in this country, would appear at first glance to simplify the question so far as it relates to this one class of products; but in truth the principle remains the same, whether three or three hundred establishments are concerned. If it were evident that an abolition or reduction of the duty on quinia would confer so great a blessing upon thousands of residents in malarial regions, as is claimed by those who advocate such changes, there would be more reason for it, although the interests of a few individuals might suffer to the extent of an utter destruction of their business; but it is by no means proven that the opening of our ports to the products of foreign manufacturers of quinia would give us a cheaper article of a quality equal to that which we now purchase. At present only the very best grades of quinia manufactured abroad can compete with the excellent alkaloids supplied by our home manufacturers, and there are reasons given which make it appear that, with the abolition of the present tariff, the market would receive a quantity of adulterated alkaloids, of which a sample sent to the Chinese market, containing fifty per cent. of carbonate of magnesia, might be taken as an example.

We fear that such resolutions as those adopted by the Michigan State Society, and republished on page 255 of this number, will have little influence with legislators besides lessening the respect they may have for the body that adopted them. It strikes us that a province in which medical men can more profitably exert themselves is in encouraging the use of the cheap cinchona alkaloids in cases where they can be made to take the place of quinia. A greater demand for these might tend to raise their price somewhat, but it would quite as likely enable the manufacturers to reduce the price of the expensive salt proportionately.

Another instance in which it would appear that a protective tariff might be abolished in the interests of a large class of the community, is in the case of soda salts. It is commonly understood that the right to work the mines in Greenland, which furnish us with our chief supply of cryolite, from which soda is now largely manufactured, is owned by one Philadelphia company, who are the sole gainers by the duty of 20 per cent. which is imposed on foreign manufactured soda. Since they are said also to own most, if not all, of the patents which govern the process of manufacture, but little competition could be feared from abroad, even if the duty of 20 per cent. *were* abolished. If these statements are true, this company have no right to claim the continuation of the 20 per cent. duty, on the grounds of necessary protection of home manufactures.

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

The Sumbul Plant.

THE drug known as sumbul or musk-root was first introduced into Russia, about the year 1835, as a substitute for musk, and recommended as a remedy in cholera; about five years later it began to be known in Germany, and ten years afterwards in England and in this country. It was admitted into the British Pharmacopœia in 1867.

Sumbul, as found in commerce, is in roundish pieces, which are transverse sections of the root. They vary from one and one-half to three, rarely five inches in diameter, and from three-fourths to one and one-half inches in thickness. On the outer surface they are covered with a dusky, light brown, transversely-wrinkled, papery bark, and when derived from the crown of the root, are beset with short, bristly fibres. The interior structure is spongy, coarsely fibrous, dry, and farinaceous-looking; the color is reddish brown, mottled with whitish patches, and when the surface is examined with the lens, it presents, particularly towards the circumference, an abundant resinous exudation. It has a strong, pleasant, musky odor, which it retains for a long time; hence the name musk-root. Its taste is at first feebly sweetish, but it soon becomes bitterish and aromatic.

Until 1869 it was only known to be the root of some umbelliferous plant, from the fact that it yielded umbelliferone by dry distillation, and that its structure was identical with that of most other Umbelliferæ. The plant itself was discovered, in 1869, by Fedschenko, in the mountains to the south-east of Samarkand (which forms the present boundary of the Russian empire, separating Russian Turkestan from Bucharia), near the small town of Pentschakend, on the river Zarafshan, at an elevation of 3,000 to 4,000 feet. A root was sent to the Moscow Botanical Gardens, where it flowered in 1871, and was determined by Kauffman as a new genus of Umbelliferæ, with the name *Euryangium Sumbul*.

In 1872 two dry roots were received at Kew from Moscow, one of which had fortunately retained its vitality. This threw up root-leaves each year, and in 1875 produced a fine flowering stem, which grew vigorously and bore numerous umbels, the leaves withering away; unfortunately, although the ovaries commenced to increase in size, they withered off and no fruit was formed. After flowering, the plant died.

The genus *Euryangium* was based by its author on the very large solitary dorsal vittæ which in the ovary occupy by far the greater part of it. These are filled with copious latex, which pours out on a section being made, and has a very strong odor of musk, especially if treated with water. In the absence of ripe fruit, this character

might have been held sufficient perhaps to sustain the generic distinction; but an examination of some ripe mericarps, sent from the Moscow Herbarium by M. Tschistiakoff, has convinced Prof. Bentley and Mr. Trimen (from whose work on "*Medicinal Plants*" we have taken the greater portion of this text) that the plant should be referred to *Ferula*, of which it has altogether the habit and general characters. It has, therefore, been named *Ferula Sumbul* by Hooker fil.*

Dried sumbul root yields about 9 per cent. of a *balsamic resin*, a very minute quantity of *volatile oil*, about 0.25 per cent. of a crystallizable acid called *sumbulic* or *sumbulolic acid*, a little *umbelliferone*, *starch*, and other unimportant constituents. The resin is soft, soluble in ether, and of a musky odor, which is rendered more evident by contact with water; it is converted by the action of solution of potash into *sumbulamic acid*, which forms a crystalline salt with it. This acid is said by Reinsch to be a crystalline body, and to have a strong smell of musk. It is in this resin that the activity of sumbul root appears essentially to reside. But little is known of the volatile oil or of sumbulic acid; the latter is stated by Ricker and Reinsch to be nothing more than angelic acid, associated with a trace of valerianic acid. A substance called *sumbulin* has also been stated by Murawieff to be a constituent of sumbul root. All the above constituents require further examination.

The accompanying plates illustrate the plant itself and its principal characteristic organs. The plant is a herbaccous perennial of limited duration, probably always dying after flowering. The large cylindrical root attains a diameter of 4–5 inches, and divides below into several long descending branches. The flowering stem is erect, from 5 to 8 feet high, slender, cylindrical, solid, about 1½ inch thick at the base, purplish, containing a milky juice, and bearing 12 stiff, long, slender divaricate branches in the upper half. The root-leaves are large, about 2½ feet long. The flowers are polygamous; umbels of bisexual flowers terminating the branches, male umbels lateral.

Explanation of Plates (both after Kauffmann): *Plate* 1 represents the whole plant. *Plate* 2, Fig. 1, sumbul-root. Fig. 2, one of the lower stem-leaves of the Moscow plant. Fig. 3, a portion of the middle secondary petiole, with the bases of the tertiary petiole arising from it; from the root-leaf of a wild plant. Fig. 3, *a*, the same petiole in cross-section. Fig. 4, single leaflet of a root-leaf from a wild plant. Fig. 5, portion of a tertiary petiole with its leaflets, from a wild plant. Fig. 6, a, flower seen from the side and slightly from above; the peduncle was cut close to its base. Fig. 7, the same, seen from above. Fig. 8, a bract. Fig. 9, a pistil, after flowering. Fig. 10, transverse section of ovary. Fig. 11, vertical section of same. Fig. 12, middle cross-section of a mericarp (umbelliferous half-fruit). Fig. 13, side view of a mericarp; the carpophorum divided to the base; the fruit-stalk cut off close to the base. Fig. 14, dorsal view of a mericarp. Fig. 15, commissural view of a mericarp.

Sumbul is usually regarded as a nervine stimulant like valerian, and as an antispasmodic; but its action requires further investigation. It has also been employed, chiefly in form of tincture, as a remedy in low typhoid fevers, delirium tremens, chronic pulmonary affections, asthenic cases of dysentery and diarrhœa, and various nervous affections, as hysteria, chorea, epilepsy, spasmodic asthma, etc. Dr. Murawieff, of Russia, has recommended the use of the resin in the dose of a grain or two, in the form of a pill, in hysteria and other nervous diseases.

* *Bot. Magaz.*, t. 6196 (1875).

Practical Hints about Dialysis.

Dialysis is a species of osmosis, that is, a diffusion or passage of fluids through organic membranes. The late Thomas Graham, to whom we are indebted for the first knowledge of the law of diffusion, divides bodies, in respect to their diffusibility, into two classes: one of these he termed *Crystalloids*,* being mostly crystallizable substances, or closely approaching them in character. They have a strong affinity for their solvents, and retard the evaporation of the latter by their presence. The other class he denominated *Colloids*,† which are uncrystallizable, of a glassy or horny structure when dry (like gelatine, etc.), and generally of an insipid taste.

These two classes of bodies may be almost entirely separated from each other, by placing the mixture containing them on one side of an organic membrane, which is in contact with water on the other. A double osmosis then takes place: from one side the crystalloids pass through the membranes into the water, and from the other side water passes into the mixture. The ratio of diffusion is inversely proportional to the densities of the liquids on either side: a dense liquid will pass slowly; a dilute liquid, or pure water, more rapidly. The colloid substances, however, are not absolutely retained on one side; they also pass through the membrane, but at so slow a rate that the crystalloids may nearly all have penetrated the membrane before an appreciable amount of colloids has accompanied them.

The apparatus employed for this process is generally constructed in the following manner: A light hoop of wood, or of gutta percha, (Fig. 1), or better, of glass, (Fig. 2), about 2 inches deep and 5–10 inches in diameter, is covered with a piece of moistened bladder or parchment paper—which have been found in practice to be the most suitable membranes for this purpose—so as to form

* *Crystalloids* means "bodies resembling crystallizable substances."

† *Colloids* means "bodies resembling glue or gelatine," from κόλλα, kolla, the glue.

a sieve-like vessel. The disk of bladder or parchment-paper should be considerably larger in diameter than the hoop, and it should be bound to the latter by a string, or by another hoop of similar material. The membrane must be entirely free from rents or pin-holes, which may be ascertained by sponging one side with water, and observing whether any wet spots appear on the other side. In the latter case, the defects may sometimes be remedied by applying liquid albumen, and coagulating it by heat. Broad glass shades, or lamp-chimneys, or similar articles, may also be used. In absence of these, a funnel, the neck of which is broken off, may answer; only in this case the membrane is placed inside of it, folded in the form of a star-filter. The apparatus then, prepared in any of these ways, is called the *dialyser*.

This is floated upon a quantity of pure water contained in another larger vessel, which has received the name "*exarysator*."* The size of the latter and the amount of water contained in it depend upon the object to be accomplished. If

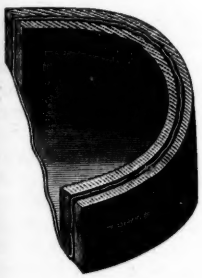


FIG. 1.

FIG. 2.

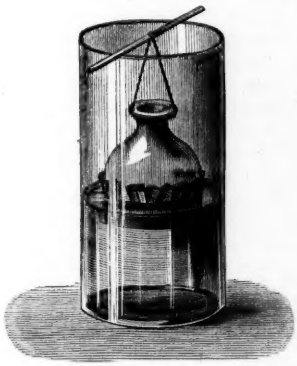


FIG. 3.

the colloid substance remaining in the dialyser be our chief object, it is best to employ a large quantity of water at once; the crystalloid bodies pass into this in the form of a dense solution, which sinks to the bottom and causes the lighter unsaturated water to be constantly pushed up towards the membrane. If we, however, want to separate the crystalloids, to the neglect of the colloids, we must use as small a quantity of water as possible.

The liquid to be dialysed is poured into the dialyser to the height of about one-half inch, or a little more, but never to exceed one-fourth of its depth, and the apparatus then floated on the water in the exarysator. The best way is to introduce just as much liquid into the dialyser as will cause the latter to sink into the water to one-third of the height of the contained liquid. These precautions are necessitated by the fact that water will diffuse upward into the dialyser more rapidly than the crystalloids will pass through the other way; and this is more particularly the case when bladder is used. It is useful to suspend the dialyser in such a manner as is shown in one of the cuts. The solution of crystalloids produced in the surrounding water is called *diffusate*. In most cases the diffusion may be greatly accelerated by the application of a gentle heat.

* The "exhauster," from ἐξαρύω, to exhaust.

Rest as a Therapeutic Agent.

DR. S. WEIR MITCHELL, in the course of an oration before the Medical and Chirurgical Faculty of Maryland in April last, made the following interesting suggestions regarding the treatment of a most troublesome class of cases:

"But if it is easy to fatten and redden some people, we know, also, that it is hard to compass this in others. In our great cities there exist a host of influences for evil which result in all classes, and especially in women, in the gradual creation of patients, who, having lost weight and become anæmic, find it hard to regain that competency of capital in fat and blood without which the business of life is carried on at a dangerous cost. We search in vain in these cases for organic changes which may explain their condition. No function is well performed; but it is useless to correct digestion or to treat an ulcerated womb, or order exercise. The blood is lacking to aid in the little gains we win, and exercise is valueless or worse when it exhausts tissues which lack the means of being rebuilded.

"I need not dwell on points so obvious to educated physicians. For many years past I have had my thoughts directed to this subject, and, like every one here, I have gone on month after month treating such cases with no better, and, I hope, no worse fortune than has fallen to others. A moment of happy thought, and much reflection since, led me to a method of treating, which has rewarded me over and over with success so brilliant that, as the plan of cure involves the use of those extreme measures of which I have been speaking, I may be pardoned for calling them to your attention.

"And perhaps also the path by which I reached my conclusions may not lack interest.

"Some years ago I saw a woman, who was like half a dozen any of you can now recall—a pallid, feeble creature, who had menstruated irregularly until two years before, and then stopped at the age of thirty. She was the type of a class. Everything wearied her—to walk, to read, to drive, to sew. She was the woman with a back, and a shawl on her shoulders, and a sofa for a home, and hysterics for diversion. She had tired out the doctors, and exhausted drug-shops and spas and travel, and outlived a nurse or two. The deformity-man had found a spinal curvature, and put on a brace; the gynæcologist had had his turn; the quacks had had their share; and she wore blue glasses to keep out the blessing of daylight. She was five feet four, and weighed ninety-four pounds, and had as much figure as a hat-rack, and had no more bosom than the average chicken of the boarding-house table. Nature had wisely prohibited this being from increasing her breed. How many of you have stood helpless before this woman! Like you, I had had my failures with such cases, and I was driven to reflect as to what new device I could try. Because everything tired her I put her at rest in bed. I made rest despotic, absolute. Then I fed her with milk at brief intervals. But in a few days my plan failed. Rest she took well enough, but attempts to feed resulted in sick stomach and diarrhœa, and new loathing for food. Then I said, I must find some way to give exercise without exertion. I had seen in Europe how much use was made of systematic massage or kneading of the muscles. I knew that under its use the feeble limbs of ataxics strengthen for a time, so that hopeful friends even dream of a cure; and I was aware that it improved the local blood-circulation in a remarkable way, and gave to feeble and flabby tissues increase of tone and firm plumpness. It seemed to me that it could take the place of exercise for persons at rest.

"I had also in electricity another means of causing muscles to contract without the action of will or the exhausting use of nerve-force.

"For the first time, then, I used on a woman at rest thorough massage and the abrupt muscle-stirring of an inductive current.

"To my great pleasure, I found in a few days a return of appetite. But is kneading of muscles a mere fetish also? What scientific test have we of its activity? One, and a sure one, which I have lately found. In weakly people, despite the exposure to the air it involves, this process raises the general temperature ½° to 1½° Fahr. And, as I discovered this winter, to my surprise and pleasure, an induction current, either localized or merely allowed to pass to and fro from neck to feet, does precisely the same. They effect tissue metamorphosis for the patient in tissues little used in bed.

"I have employed every degree of rest; but in this woman's case, as usually, I permitted no exertion which could be avoided, and I carried it to such an extreme as to have the patient fed by hand, because it is tiresome while recumbent to use the arms, and because I have found that human beings, like turkeys, can be made to eat more when fed by another agent.

"To this treatment in a few days may be added raw soup and butter, and meat extracts, and iron in large doses.

"I fed this woman, with growing surprise at her power to digest as she reddened and fattened. And how did she fatten and redden? The nails became pink; the veins began to show in the limbs. At first, as always, the extremities became cold under massage, then they grew warm, and at last, when she was well, the massage no longer elevated her temperature. And this is the rule. And as to fat, it comes first on the face and neck, and then on the back and belly, and last on the limbs.

"By absolute rest, massage, and induction-currents, you acquire power to over-feed, and the tissues are enabled to reclothe themselves with fat, and, what is better, you can thus refill the blood-vessels. This woman came to me thin, sallow, ugly, and feeble. I sent her home fat and well, and vigorous and handsome, and menstruating steadily; and then nature relented and gave her a baby.

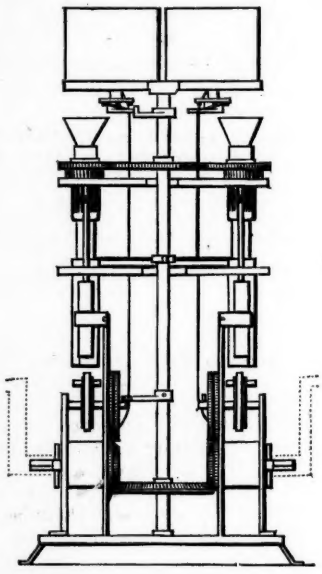
"This treatment has been to me a new light. I use it now without fear or hesitation, and think that I have learned at last how to recreate the blood and how to fatten. I have quoted one real case, my first. But this is no place nor occasion to relate cases, or to enter into details, as I shall elsewhere; but I may venture again to say a word as to two facts, even at the risk of being minute. During the treatment slight hemorrhages from the nose are not uncommon, but the return of regular menstruation is a better test of the rapid gain in blood. It nearly always becomes regular, and in three cases has returned during the first month of treatment, after absence, respectively, of three, five, and eight years.

"The gain of fat is sometimes at the rate of one-half pound a day. I have seen it reach three-fourths of a pound a day; but these rates are rare.

"The applications of this treatment are many. I have used it in numbers of cases, selecting at first such as had no hopeless organic disease. I have also used it to prepare feeble people for surgical operations, and within a year I have ventured to treat in this peculiar way people in the early stages of pulmonary phthisis. I have seen as to these some notable facts, and have learned that in some such cases rest and over-feeding are of true curative value; for this is one of the doctor's best lessons, that there may be one way or several to a cure. In the early stages of phthisis we have all come to think air and exercise and out-door life the one thing needful or hopeful, and I may be thought insane to propose to treat such cases by rest and excessive feeding; but I promised at the outset to give you personal and practical experiences, and this is one, and now and then I have seen it do good service."

Simple Method of Testing the Purity of Chloroform.

DR. LUEKE, of Strasbourg, gives the following simple method of testing the purity of chloroform: Immerse a small piece of thin white blotting-paper into the chloroform, and then let it dry in the air. As soon as all the chloroform has evaporated, the paper will not present the least smell if the chloroform is pure. If there is any acid smell perceptible, it indicates the presence of butyric acid in the chloroform, and as a rule has the strong characteristic odor of that substance.



Seidlitz Powder Machine.

CHARLES R. DOANE, of Brooklyn, is the inventor and patentee of a machine for putting up Seidlitz and other powders with great exactness, neatness, and rapidity; its capacity, when run at a moderate rate of speed, being five hundred powders per hour. The powder in bulk is placed in the receptacles on top of the machine—the acid on the left and the alkali on the right—from whence it is discharged by appropriate measures through the funnels below into papers made ready to receive it by the mechanism at the base. The whole operation of measuring, depositing, folding, pressing, and discharging, is accomplished by a half-revolution of the perpendicular shaft, and the powders are cast out—the white to the left and the blue to the right—ready for boxing. A point of considerable importance is, that each powder is enveloped in two thicknesses of paper, thereby preventing deliquescence of the acid powder, and yet no more paper is used than for single thickness—in hand-folding the paper used for the fold in the old method furnishing the outer wrapper in this. A device beneath the bed-plate provides for the application of power, if desired.

Effects of Medicines upon the Fœtus.

IN a paper by John L. Cleaveland, M.D., published in *The Clinic*, the following conclusions are advanced:

1. Certain remedies, *e. g.*, potassium iodide, salicylic acid, and chloroform, may pass from the maternal into the fœtal circulation.

2. The acute exanthemata, scarlatina, measles, small-pox, and perhaps vaccination, can be transmitted by the mother to the fœtus. Whether syphilis passes from the mother to the fœtus, or *vice versa*, remains yet undecided. The effect of maternal, mental, and emotional influences upon the vitality and development of the fœtus is yet undetermined.

As to the therapeutic effects of medicines upon the fœtus almost nothing is known. There is only one class of remedies that is administered with the belief of hope that they will have any effect upon the fœtus, namely, syphilis specifics, and the efficacy of these is stoutly denied by some.

Chloroform is known certainly to enter the fœtal circulation, but it is not known to exercise any pernicious effects. Zweifel claims that jaundice may be caused. This, however, is not proved.

It has not been demonstrated that morphia passes into fœtal circulation, but clinical experience appears to prove that in the hands of most practitioners, and in the vast majority of cases, opiates may be used with safety to the fœtus.

It appears, however, on the other hand, from the testimony of some observers, that the hypodermic use of morphia to its full physiological effect produces in the fœtus dangerous phenomena, cyanotis, impaired respiration, irregular pulse, contracted pupils, a disposition to sleep, and sometimes convulsions. It is of the utmost practical importance to us all that this latter point should be determined.

Improvement in the Manufacture of Oxalic Acid.

MR. ED. BOHLIG, of Eisenach, has devised an improved process for the preparation of pure oxalic acid, which materially shortens the time, labor, and therefore expense of its manufacture. The first step of this process is identical with that hitherto practised, of which the following is an outline.

A solution of caustic potassa, of 36° Baumé, is heated to boiling in a strong iron boiler, and pine-wood sawdust is added until the mass becomes thick. The heat is continued, and when the water has evaporated, the contents of the boiler soon return to a liquid state, become homogeneous, and assume a turmeric yellow color. After heating for two to two and one-half hours longer, the fire is withdrawn, and the solution allowed to cool a little. Water is then added slowly to the still hot mass, until the density of the solution is 40° B., when it is allowed to become entirely cold. The yield of potassium oxalate, which is completely insoluble in a lye of 40° B., is very large. This product, potassium oxalate, or sodium oxalate, if

soda has been used instead of potassa, has up to the present time been decomposed by boiling with milk of lime, which must be done in dilute solution. This produces a dilute soda or potassa lye, and a voluminous precipitate containing calcium oxalate and large quantities of calcium carbonate, necessitating the waste of a considerable quantity of sulphuric acid, which must be added not only to decompose the oxalate, but likewise to convert the excess of carbonate into sulphate. The resulting solution of oxalic acid is very dilute, and requires to be concentrated by heat, besides being still impure.

Mr. Bohlig's improvement consists in dissolving the washed and recrystallized potassium oxalate, obtained in the first step of the process, in a large quantity of hot water, and precipitating with a solution of magnesium chloride or sulphate. The well-washed precipitated magnesium oxalate is heated in a wooden vat by means of a steam coil, and concentrated hydrochloric acid is added, until everything is dissolved. The clarified solution is drawn off, while still hot, into stone-ware vessels, and on cooling pure oxalic acid crystallizes, which needs only to be washed and recrystallized to be chemically pure.—*Bayer. Ind. und Gew. Bl.*, 1877, 6.

The Use of Lacto-Phosphate of Lime in the Artificial Production of Dentine.

In the *Transactions of the New York Odontological Society* is a paper on the artificial production of secondary dentine, by the use of lacto-phosphate of lime over exposed dental pulps. The writer states that phosphate of lime partially digested in lactic acid and applied in a more or less thick paste to an exposed dental pulp in the plasma and applied at once in the building up of secondary dentine, and the restoration of the lost parts. If this is true there would seem to be nothing in the way of building up in this manner a whole tooth minus the enamel, and it would seem to be an exception to every law of nature, which demands that nutrition shall come by the way of the circulation.

On the Quantitative Estimation of Soda and Potassa.

In order to determine in a mixture of potassium and sodium carbonates the proportion of the two bases by the so-called indirect method, it has been hitherto customary to convert the two carbonates either into neutral sulphates or into chlorides. This proceeding, however, is unnecessary, since the determination of the carbonic acid serves to accomplish the same purpose. If the carbonic acid is found to be over 31.80 per cent. (percentage of carbonic acid in potassium carbonate), or to be less than 41.47 per cent. (percentage of carbonic acid in sodium carbonate), this proves in itself that we have to deal with a mixture of the two carbonates.

To find the quantity of potassa, the weight of the two bases is multiplied with 1.708763,* the product is subtracted from the weight of the two salts, and the remainder is divided by 0.242663.†

The weight of soda is found by multiplying the weight of the two bases with 1.4661, deducting from the product the weight of the two salts, and dividing the remainder by 0.242663.

Example:

The weight of both carbonates together 2.000 gm.
That of the carbonic acid liberated....0.744 "
Hence weight of the two bases.....1.256 "

Calculation of Potassa:

a. $1.708763 \times 1.256 = 2.146206338$
b. $2.0 - 2.146206338 = -0.146206338$
c. $0.146206338 : 0.242663 = 0.6025$ potassa.

Calculation of Soda:

a. $1.4661 \times 1.256 = 1.8414216$
b. $1.8414216 - 2.00 = -0.1585783$
c. $0.1585783 : 0.242663 = 0.6535$ soda.

Proof:

0.6025	potassa	= 0.8833 potassium carbonate.
0.6535	soda	= 1.1167 sodium carbonate.
1.2560	mixed alkalies	= 2.0000 mixed carbonates.

—C. G. Wittstein, in *Phar. Centralh.*, 1877, 161.

Sophora Speciosa, Benth.

This newly described medicinal substance is a small red bean, irregularly oval or roundish, about one-third of an inch in length, and having a slightly bitter taste, with an after-feeling of numbness when chewed. Some of these beans have been sent to the Smithsonian Institute, at Washington, by Mr. Edmund Billinger, Sr., of Texas, who stated that they were occasionally used by Indians in the neighborhood of San Antonio, South-western Texas, as an intoxicant; that a half-bean would produce delirious exhilaration, followed by sleep lasting two or three days; and that it was asserted that a whole bean would kill a man.

Some of these beans having been sent to Professor Horatio C. Wood, of Philadelphia, he obtained other samples from Mr. Billinger, and together with the latter some of the flowers of the plant. Dr. Rothrock, Professor of Botany in the University of Pennsylvania, after an examination of the latter, pronounced the source to be the *Sophora speciosa* of Bentham.

Professor Wood has obtained a small amount of organic principle from the beans, which is extremely active as a poison, the minutest speck producing, in two minutes, almost entire paralysis in the frog. One-twentieth of a grain of a very impure specimen produced, in a half-grown cat, deep sleep lasting many hours.

As the substance is not soluble in water, but is

* Quotient obtained by dividing the molecular weight of sodium carbonate by that of soda.

† Remainder left after subtracting from 1.708763 the number 1.4661, which is the quotient obtained by dividing the molecular weight of potassium carbonate by that of potassa.

soluble in acidulated water, and is precipitated by alkalies; and as it dissolves freely in ether, imparting to it a decidedly alkaline reaction, Professor Wood looks upon it as an alkaloid, and gives it the name *sophoria.*

The sample obtained by Dr. Wood was of grayish white color, but he did not succeed in crystallizing either it or its acetate. Its reactions, so far as he had examined them, were as follows (the tests being made by placing a speck of the alkaloid upon a porcelain plate and applying the reagent):

With concentrated sulphuric acid, no color.

With chromic acid and concentrated sulphuric acid, a dirty, deep purple, passing rapidly into bright green, then into bluish, and finally into yellowish brown.

With tincture of the chloride of iron, a deep, almost blood red, after a time acquiring an orange tint.

With nitric acid, no color.

With chromic and nitric acids, a very faint, evanescent, reddish color.

With nitro-muriatic acid, a dirty, reddish brown.

From the solution of its acetate, compound tincture of iodine throws down a yellowish precipitate.

The experiments, made by Dr. Wood upon lower animals, with a view to determining the effects of the remedy upon them, show that *frogs* rapidly lose reflex activity and power of voluntary movements. Further experiments demonstrated that this effect was due to the action of the drug as a spinal sedative, and that it had little or no effect upon either motor or sensory nerves.

Upon *mammals* the effect varies somewhat according to the dose. An amount of the extract estimated at two grains produced in a full-grown cat, in one minute, marked weakness in the hind legs; in two minutes, inability to stand, with evident effect upon the respiration; in three minutes, convulsive movements, with loss of consciousness, continuing with increasing embarrassment of breathing for three minutes, when all attempts at respiration ceased. The heart kept on beating for one and a half minutes longer. The pupils were unaffected at first, afterwards dilated. In small quantity the extract produces, in the cat, vomiting, great muscular weakness, profound quietude, and deep sleep lasting some hours and ending in recovery. Similar symptoms occurred in dogs. Death always took place through stoppage of respiration. In a single cardiac experiment the drug had no decided effect upon the blood-pressure until towards death, but appeared to accelerate the heart-beat.—*Medical Times.*

A New Gravimeter.

In an interesting paper presented by J. J. Mann, on the subject of testing the strength of Portland cement and other materials of the same class, reference is made to the mode of determining their specific gravity, and a very simple and practical method is suggested by the author of the paper. He employs an ordinary specific gravity bottle, and a graduated pipette which holds the same quantity of fluid as the bottle, the measure in both being indicated by a cut on the glass; a known quantity of cement, say 100 grains, is introduced into the flask, and the remaining space is filled from the pipette with any liquid which will not dissolve the cement or cause it to set. It only remains to observe the height at which the liquid stands on the scale of the pipette, which is graduated experimentally in order to ascertain the density of the substance experimented upon. This contrivance dispenses with the somewhat tedious process in ordinary use for taking the specific gravity of solids in a powdered condition, and is not unlikely to become of more general utility than anticipated by the gentleman who has introduced it.

The Supposed Poisonous Effects of Dental Vulcanite.

Mr. Bathurst Woodman having published a statement to the effect that he had observed several cases where patients had shown evidences of mercurial poisoning for which he could find no other explanation than that they were wearing artificial gums or palates colored with vermilion, the Odontological Society of Great Britain has been engaged in an investigation of the matter.

The report which the committee made on the subject included another from Prof. Attfield, who had undertaken a series of experiments with results leading to the following conclusions:

"1. So far as any action on man is concerned, vermilion is a harmless substance.

"2. So far as any action or influence of the vermilion is concerned, the mixture of vermilion, sulphur, and india-rubber, commonly termed dental rubber, is also a perfectly innocuous substance.

"3. Pink or red dental vulcanite, even when placed under the severest conditions of experiment, does not yield any trace of mercury to saliva, or indeed to other far more powerful solvents.

"4. The metallic points and braces in dental vulcanite do not displace mercury, or induce the formation of any compound of mercury soluble in saliva or in more powerful solvents.

"5. The results of this investigation are such as would be anticipated by chemists. For, first, vermilion is well known to be of the most repellant or sluggish nature as regards any action on it by ordinary solvents, or even by corrosive fluids. Secondly, india-rubber, or the sulphurized or hardened india-rubber, termed vulcanite, is, as regards resistance to corrosion or solution, one of the most chemically obstinate of substances, and would well play the part, if necessary, of protector from chemical attack of any material well mixed in it. Thirdly, even if metals extracted sulphur from vermilion, at the low temperature of vulcanization, as they do at a far higher temperature, they would do so because of their great

affinity for sulphur; hence would properly be expected to combine with the free sulphur mixed with the vermilion and india-rubber in preference to the sulphur already intimately combined with the mercury.

"6. The harmlessness of vermilion vulcanite should also be anticipated by medical practitioners, for it has been extensively used for the last fifteen years, and during that time hundreds of thousands of persons in Europe and America have worn, and are now wearing, pink and red vulcanite teeth-plates, and it is inconceivable that any wide-spread or even occasional harm resulting therefrom could elude the trained powers of observation of physicians and surgeons. The medical records, extending over many years, show that only three writers have ever suspected or regarded vermilion vulcanite as liable, in extremely rare cases, to be somewhat mischievous, and in these cases, that the fault lay with the vermilion, was not conclusively proved.

"7. Though however chemistry and medicine would concur in forecasting the innocuous nature of vermilion vulcanite, experimental evidence of its harmlessness should be most acceptable; for the integrity of a substance worn within the mouths of men and women in all civilized countries must be beyond suspicion.

"8. I am of opinion that vermilion vulcanite teeth-plates are practically unaffected by saliva, or by any substance which ever gains access to the mouth, and, in short, that the pink and red vulcanite artificial gums and palates now so generally worn are absolutely harmless."—*Pharm. Journal and Trans.*

Tayuyá; Dermophylla pendulina.

TAYUYÁ, or tayuiá, is the name of a vegetable drug, which has been employed for a very long time by the natives and physicians of Brazil, as a remedy in various diseases. *Tayuia de abobrinha* or *abobra* is the common name of the plant in question, which is *Dermophylla pendulina* Manso, nat. fam. Cucurbitaceæ-Bryonieæ, and whose synonymes are *Brianosperma ficifolia* Mart., *Bryonia ficifolia* Lam., *Bryonia tayuya* Velloso.* The root is the most active portion. It is said to be a most valuable remedy in malarious fevers, dropsy, syphilis, mental disorders, elephantiasis, skin diseases, etc. It has also been used with tolerable success externally, in form of a lotion, particularly in an affection common to Brazil, namely, an inflammation of the sphincter ani (bicho do cû), according to Rosenthal, in his Synopsis plantarum.

Stanislaus Martin states (in *L'Union pharm.*) that he had received specimens of the root in slices 5 cm. (2 inches) broad and 2–3 mm. (ab. ⅛ inch) long. According to Martin's description, it does not seem to be much different from that of the European Bryonia root. He extracted from it a green resin (tayuyin); a citron-yellow fat, and brown extractive matter, both of very bitter, aromatic taste; tannin, pectin, traces of glucose, starch, and volatile oil; and he found the ash to contain magnesia, lime, alumina, potassa, and iron. He could find no alkaloid in it. Prof. Luigi Gabba, of Milan, extracted the root with alcohol, and obtained by evaporation a brown extract, of neither acid nor alkaline reaction, very stable, and drying up to an amorphous mass, which was only partially soluble in cold, but more so in boiling water. The latter solution, mixed with dilute sulphuric acid and heated, did not exhibit any remarkable change, but gave indications of glucose. As this reaction failed to make its appearance before the addition of the acid, Gabba concluded that the root contained a glucoside. Prof. Zenoni states, that on exhausting the root with ether and then treating it with acidified alcohol, he obtained a substance which appeared to give him the reactions of an alkaloid. Yvon, who subjected Martin's investigation to a control, found in it a wax-like resin, soluble in ether and chloroform, of acid reaction, greenish-yellow color and very bitter taste. Its melting-point is said to be at 49° C. (120° F.), and its solution in alkalies or ammonia developed microscopic crystals. This resin is said to be the active portion. An alcoholic tincture of the root deposited, after concentration, a small quantity of prismatic crystals, but they were devoid of alkaloidal properties.

The explorer Luigi Ubicini brought the root to Europe, and caused a strong tincture to be prepared from it, of the strength of 1 part dry root to 3 parts of 80 % alcohol. This was directed to be diluted with three times its weight of dilute alcohol before using, and this diluted tincture is used internally as *Tinctura Dermophyllæ diluta* in doses of 2 to 12 drops, 3 to 4 times a day. The *daily* dose should not exceed 24 drops. For external use in syphilitic or scrofulous skin diseases, it is to be diluted with twenty or thirty times its weight of water; although it may be used in concentrated form upon indurated glands. For hypodermic use 0.3–0.5 gm. of the tincture are to be diluted with water to 1 gramme, which constitutes one dose.—*Pharm. Centralh.*, 1877, 211.

An Easy Method for Approximately Determining the Strength of Acids or Alkalies.

DR. CARL JEHN, of Geseke, Germany, has published (in *Archiv der Pharmacie*, May, 1877, p. 414) a simple method for determining the percentage of acetic acid in vinegar, which appears to be applicable as well to other substances. The principle of the method is the old one, of decomposing a carbonate by the vinegar, but instead of

* The name Tayuyá, or Tayuiá, is not restricted to *Dermophylla pendulina*; it is applied to some other members of the gourd family (Cucurbitaceæ), as for instance: *Bryonia cordatifolia* Godoy, tayuiá de pimenta; abobra do Mato. *Wilbrandia hibiscoides* W., tayuiá de quiabo; abobrinha do Mato, etc.; see *Enumeração das Substancas Brazileiras que podem provomer a catarze; por A. L. P. da Silva Manso.* 8vo. Rio de Janeiro, 1838; p. 27, etc.—ED. N. R.

estimating the carbonic acid by loss of weight, it is made to displace water, which is then measured.

Into a glass jar, which is provided with a rubber stopper carrying a glass tube for conducting off the gas, is placed a quantity of sodium or potassium bicarbonate. Upon this is placed a small open vial, holding exactly 10 c.c. of the vinegar to be assayed, the stopper is inserted, and by shaking or inclining the jar, the vial is upset, thereby spilling the acid over the bicarbonate. The resulting gas passes through the glass tube into a vessel of water, and by the pressure which the gas exerts upon the surface of the water, it displaces a portion of the latter, which flows through an outlet into a graduated cylinder. The divisions of the latter are so arranged, as to indicate at once the percentage of anhydrous acetic acid.

[On the other hand, an apparatus of this kind could also be used to determine, approximately, carbonic acid in carbonates. The weighed carbonate being placed into the glass jar, a quantity of acid judged to be amply sufficient is placed into a beaker, the apparatus closed, and by shaking, the acid spilled over the carbonate. The cylinder receiving the water, however, would have to be graduated especially for this purpose.]

The Use of Terebine as a Surgical Dressing.

MR. H. S. WADDY reports in the *British Med. Jour.* his experience with the employment of terebine (oil of turpentine) in the dressing of wounds. A list of ten cases is given, in most of which capital operations were performed and the future dressing made with this substance. The cases did unusually well. His mode of applying the remedy in the case of an excised knee-joint is thus given:

"Bleeding having been stopped by torsion of vessels, the wound is washed with terebine and water (an ounce to the pint, the two being well shaken together); all bone-dust and blood-clot being removed and the skin of the limb cleansed, pure terebine is poured freely over the surface of the wound, and all crevices filled with it. The limb is placed on a common wooden back splint, with foot-piece properly padded, and strips of strapping fix the thigh, leg, and foot to the splint.

"The edges of the wound are adapted with the fingers, and strips of lint soaked in terebine (pure) are passed tightly round the limb to maintain them in apposition, plenty of terebine being poured between the surfaces of the wound. No ligatures or sutures are used.

"Cotton wool is applied outside the lint, enveloping the entire limb from toe to groin, and a bandage soaked in terebine outside the wool. The nurse is instructed to keep the outside bandage soaked in terebine, a small quantity dropped two or three times daily upon it sufficing for the purpose. A wound thus dressed may be left for weeks without a bandage or pin being removed. Before removal of the dressing it should be well soaked with terebine for three or four hours. This is done by slowly dropping the terebine all over the surface of the bandage. It is then removed carefully, layer after layer being divided with the scissors, and fresh terebine is poured on to moisten any parts which have become matted together, when they easily separate. I have never been troubled with any quantity of discharges; as a rule, the amount is practically nil. If the terebine be frequently applied, there is no unpleasant odor."

The advantages of this mode of dressing are these:

1. The patient never sees the wound; he is spared the anxiety caused by the anticipation of being dressed, and the bodily shock attendant upon the removal of dressings.
2. The wound is treated antiseptically.
3. The efforts of nature are not interfered with by accidental rough removal of dressings.
4. Perfect rest, the treatment for pain, is obtained.
5. Economy of time and labor for surgeon, assistants, and nurses, is secured.

On the Preparation of Neutral Tannate of Quinia.

THIS salt of quinia has been employed for some time, and forms a very eligible preparation, especially in the treatment of children, owing to its entire tastelessness. To obtain it, 1 part of quinia sulphate is dissolved in distilled water, by aid of diluted sulphuric acid, and the quinia is precipitated by a solution of soda. The washed alkaloid is then dissolved in 10 parts of alcohol, spec. gr. 0 828, and the solution mixed on the water-bath with a sufficient quantity of warm water, just short of causing any separation of quinia.

In another porcelain capsule 3 parts of tannic acid are dissolved in 60 parts of distilled water, the quinia solution is very gradually, and under assiduous stirring, added to this, and the contents of the capsule are heated on the water-bath for about 15 minutes. The whole is then transferred to a filter; the precipitate is washed with warm water, until the filtrate runs off colorless and free from bitter or astringent taste, and *particularly*, until it ceases to become cloudy on cooling. The tannate of quinia remaining on the filter is then dried. The warm solution, which has drained from the precipitate, deposits on cooling a tannate of quinia, which has a very marked bitter taste. Acid tannate of quinia, namely, subjected to a thorough washing with boiling water, is converted into the neutral tannate, which remains upon the filter.—P. J. HAAXMAN, in *L'Union Pharm.*, 1877, 135.

Malt Extract as an Emulsifier.

PROFESSOR GEO. F. H. MARKOE recently called attention to malt extract as an emulsive agent for cod-liver oils and other oleaginous preparations. At the present time, when cod-liver oil is extensively employed as a therapeutic agent, anything that will neutralize or overcome its disagreeable oily character and bad taste will be welcomed by

patients. Extract of malt possesses the power of producing a perfect emulsion with cod-liver oil, and a mixture of equal parts of cod-liver oil and extract of malt was exhibited, having a semi-solid consistence, in which the taste of the cod-liver oil was more perfectly concealed than can be accomplished by any other known process.—*Boston Med. and Surg. Journal.*

Nitro-methane, Nitro-ethane, and Nitro-pentane.

THESE three names have been assigned by Victor Meyer to the three isomeres * of methyl nitrite, ethyl nitrite, and amyl nitrite, which he obtained by boiling the iodide of methyl, ethyl, or amyl with silver nitrite, and which appear to be bodies of great therapeutic importance. In view of the physiological and therapeutic importance of amyl nitrite, it might be expected that the isomeric nitropentane should be endowed with energetic properties. The investigations, however, of Schadow, of Strassburg, and Filehne, of Erlangen, have shown that it belongs to a class of bodies which, so far, are rather unmanageable in the hands of physicians. It acts like picrotoxin and codeia, producing epileptiform convulsions, proceeding, not from the spinal marrow, but from the medulla oblongata. It is altogether different in its action from amyl nitrite, and requires further study to ascertain if it can be used medicinally.

Of much greater use, however, promise to be the other two compounds, namely, nitro-methane or nitroëthane, both of which, in comparatively small doses, produce, according to Filehne, a state of insensibility against pain (analgesia or analgia). They arrest motion only in large toxic doses, and produce then a sort of paralysis which may be repeatedly induced. The diminution of sensibility progresses from the nerve-centres. If these symptoms, which so far have only been studied in animals, should also be found to occur when administered to man, the two bodies would be of extraordinary value in medical practice, as they leave the heart's action entirely unaffected. Perhaps they, or one of them, will turn out to be the long looked-for "absolutely safe anæsthetic," or at least a narcotic which may rescue many a victim from the demon of morphiomania. It is highly desirable that further careful clinical experiments on the action of nitro-methane and nitroëthane upon neuralgia and other painful affections be instituted.—TH. HUSEMANN in *Pharm. Zeit.*

* These three pairs of isomeric bodies form a good example to show, how two substances may have the same ultimate composition, and yet possess entirely different properties. The identity extends only as far as the percentage composition, the molecule of each substance being built up in an entirely different manner :

CH_3NO_2,	methyl nitrite,	boils at	12° C. (10° F.);	lighter than water
" "	nitro-methane,	"	99° C. (210° F.);	heavier "
$C_2H_5NO_2$	ethyl nitrite,	"	16.5° C. (61° F.);	lighter "
" "	nitroëthane,	"	113° C. (235° F.);	heavier "
$C_5H_{11}NO_2$,	amyl nitrite,	"	96° C. (205° F.);	lighter "
" "	nitro-pentane,	"	155° C. (311° F.);	heavier "

Effects of Pilocarpine used Hypodermically.

FROHNMÜLLER finds that crude pilocarpine, a reddish-brown extract of weak alkaline reaction, imperfectly soluble in water, easily dissolved in alcohol, in pill form, 0.016 to 0.02. grm. ($\frac{1}{4}$ to $\frac{1}{3}$ grain), produces the same effect as an infusion of 5 grammes (80 grains) of jaborandi leaves, even in relation to the unpleasant after-effects. The muriate of pilocarpine, a crystalline substance of acid reaction, easily soluble in water, is, according to F., very well adapted to subcutaneous injections. He injected $\frac{1}{5}$ to $\frac{1}{4}$ grain, and observed after a few minutes the well-known effects of jaborandi, profuse perspiration and salivation, disturbance of vision, particularly for near objects, nausea, and even slight vomiting, and finally transitory increase of frequency in pulse and respiration.

Pumpkin Seeds and their Active Principle.

THE nature and location of the active principle of the pumpkin seeds appears to have been determined by Heckel, of Nancy, who has published an interesting memoir on this subject. In the French drug trade pumpkin seeds are derived from *Cucurbita maxima*, *C. Pepo*, and *C. moschata*, which are equally serviceable against tape-worm, while the black seeds of *C. melanocarpa*, or the seeds of the closely related genus *Cucumis*, are entirely devoid of medicinal value, since the two latter lack the very membrane in which the active principle resides. The seeds of the three first-mentioned species differ chiefly in dimensions and color. Those of *C. Pepo* (pumpkin) are the smallest, having an average length of 6–7 millimetres, rarely as much as 20–25 mm. ; they are oblong-ovate, have a groove along both edges, where they are thickened, and have a dirty-white color. The seeds of *C. maxima* are 18–25 mm. long, by 10–15 mm. broad, are regularly oval, and vary in color from white to orange. *C. moschata* has slightly smaller seeds, 16–22 mm. long, and 9–12 mm. broad, pure white, grooved, and the surrounding thickened edge of darker color. These three varieties of seeds consist of a perisperm made up of four coats, and an embryo with two thick oily cotyledons. The most external coat of the perisperm is an exceedingly fine membrane, constructed from a single layer of oblong cells, which imparts to certain varieties a characteristic silver-gray appearance. Below this lies the tougher *testa*, made up from singularly polyëdric, finely incrusted cells filled with starch. Both of these coats are removed by washing the *dried* seeds, while the washing of *fresh* seeds removes also the next two coats. The first of these—the third coat, counting from outside—is dirty-white, of a loose and spongy texture, and consists of spherical reticulated cells. The *fourth* and innermost coat, finally, which has a dark green color when fresh, changing gradually to greenish yellow, has a chartaceous appearance and consists of two layers : the outer one made up of hexagonal or pentagonal cells with moderately thick walls, including chlorophyll and

a resinous mass; the inner one formed by elongated cells, including starch. The resinous mass in the outer layer of the fourth or innermost coat of the seeds is, according to Heckel, the active tænicidal principle, and not, as has been supposed, the fatty oil residing in the cotyledons. Owing to the absence of this papyraceous membrane, which alone contains the resin, in other cucurbitaceous seeds, these latter are inert. At the same time it is shown that even active seeds become inert, when they are blanched in a fresh state, as *all* the coats are thereby removed.—From *Pharm. Zeit.*, 1877, No. 55.

Preparation of Emetia.

ACCORDING to Lefort and Wurtz, the nitrate of emetia is so little soluble in water, that it may be made the starting-point for its separation from any fluid preparations of ipecac. A concentrated watery solution of the extract, or the fluid extract, previously deprived of alcohol, and concentrated, is mixed with a saturated solution of potassium or sodium nitrate, whereby a resinous mass is thrown down, which consists of nitrate of emetia. This is removed, washed with water, dissolved in alcohol, and the solution poured into milk of lime. The mixture is evaporated to dryness, powdered, and exhausted with ether, which, on evaporation, leaves behind the alkaloid, generally of a yellowish color. This is taken up by dilute sulphuric acid, and reprecipitated by ammonia, when it is obtained colorless. The authors have re-examined the constitution of the alkaloid, and find it to correspond to the formula: $C_{28}H_{40}N_2O_5$.—*Répert. de Pharm.*, 1877, 385.

The Poison of Small-Pox.

IN the session of the French Academy of April 30th, Messrs. Pasteur and Joubert made an important communication on the nature of the poison of small-pox (hæmorrhagic variety). They have succeeded in propagating the bacteria, which are contained in the blood during this disease, outside of the living organism, in "dead" liquids; and they found that their vitality remained unimpaired, even after repeated transplantation. Such an infected solution may be filtered by means of appropriate apparatus, and completely freed from bacteria, so as to become entirely inert. During the artificial propagation of these bacteria in clear solutions, no microscopic granulations appear to be formed, at least, even under the most powerful lens, no organized or amorphous substances can be traced outside of the bacteria. These facts make it highly probable that the poison of small-pox is a bacterion, and not a virus.—*Ber. d. Deutsch. Ch. G.*, 1877, 1171.

Recovery of Gold from Solutions.

AN easy method to recover gold from solutions, particularly from old toning-baths of photographers, has been made known by Fr. Haugk. It consists in filtering the solution into a white glass flask or bottle, making it alkaline with sodium bicarbonate, and then adding, drop by drop, a concentrated alcoholic solution of aniline red (fuchsine), until the liquid retains a deep strawberry color. The flask is then exposed to the sunlight for six or eight hours, at the end of which all the gold still present will have been precipitated as a dark violet powder, and the liquid will have become colorless. After pouring off the liquid, the flask, with its precipitate, is kept until a fresh quantity of solution has to be precipitated, and this is continued until the deposit in the flask is sufficiently large to make it worth while to remove it. It is then transferred to a filter, washed, dried, and burned with the filter. The residue, containing the filter-ash, is dissolved at a gentle heat in aqua regia, filtered, and the solution evaporated to dryness. The quantity of impurity caused by the simultaneous solution of the filter-ash is too insignificant to be objected to.—*Pharm. Centralh.* fr. *Phot. Arch.*

Glycerole of Phosphorus.

MR. CHAS. MÉNIÈRE criticises the method heretofore employed for preparing the glycerole of phosphorus, as being imperfect and unreliable. The method consisted in heating the glycerine and dissolving phosphorus in it. Frequently, however, there appears, when the solution cools, an opalescence and a deposit, which is due to a separation of phosphorus. To prevent this, he recommends to use phosphorus in a finely divided state, which may be obtained by mixing it with a substance soluble in glycerine itself. Sugar or gum-arabic are probably best adapted for this purpose. Either of these, in powder, is mixed with a little glycerine, to obtain a mixture of the consistence of honey. This is heated on the water-bath, the phosphorus is added, and intimately incorporated with it. Then the remainder of the glycerine is added, first in small quantities at a time, and care is taken that the temperature does not exceed 50° C. (122° F.). Dorvault in his *Officine* recommends to make a solution containing 0.10 gm. of phosphorus in 100 gm. of glycerine. The author, however, thinks that Reveil's formula is preferable. This contains 0.10 gm. phosphorus in 1,000 gm. of glycerine, and is much better borne by the stomach, even in equivalent doses, than the former.—*Répert. de Pharm.*, 1877, 354.

Camphor-Vapor Baths.—These baths are used with very good effect—so it is said, in the Queen's Hospital, Birmingham—for the relief of Bright's disease. They are also said to produce very free perspiration, and are given every evening in the following manner: The patient is seated upon a cane-bottomed chair, with a large blanket pinned around his neck. Half an ounce of camphor is placed upon a tin plate under the chair, and above the flame of a small spirit-lamp, by the heat of which the camphor is slowly vaporized. This plan of treatment is also employed in some cases of convalescence from acute or sub-acute rheumatism, when the action of the skin is defective, and when some pain and stiffness of the joints remain.

RECENT PAPERS.

American Journal of Pharmacy.

July. F. V. GREENE: "Extraction of Caffein from Guarana." [The author, a surgeon in the U. S. N., finds that Wayne's process to extract caffein from coffee and tea by means of litharge is equally applicable to guarana. One part of this is intimately mixed with three parts of fine litharge, and the mixture boiled with distilled water until, on interruption of the boiling, the insoluble portion is seen to subside rapidly, leaving the supernatant liquid clear, bright, and colorless. About one pint of water is required for every 15 gm. of guarana. The liquid is removed by filtration and the residue washed on the filter with boiling water. H_2S is then passed through the filtrate to remove the small quantity of lead in solution, the liquid again filtered, heated to expel H_2S, and filtered from the precipitated sulphur. On concentrating the liquid, caffein crystallizes out. Average yield 5 per cent. The author also points out that the correct accentuation of the word in Brazil is guaraná.]

J. U. LLOYD: "Hypophosphite of Berberina." [The author states that this is a much more soluble salt than any other of berberina. Preparation: Heat a watery solution of berberina sulphate at 180° F. with litharge for 6–12 hours. The sulphuric acid then unites with lead. Filter off the liquid (the alkaloid is very soluble in water), remove excess of lead by H_2S, and filter again. Evaporate to a small bulk, add solution of hypophosphorous acid in slight excess, and cool. Remove the magma of fine crystals and dry them.]

L. GENOIS: "Emulsion of Oil of Turpentine (and other essential Oils)." [The author's process is as follows: Place 10 grains of perfectly dry, finely-powdered soap into a round-bottomed mortar, add one ounce of the oil by degrees with constant trituration; when well mixed, transfer to a bottle, add one-half oz. water, shake vigorously; add a little more water, and shake again. This makes a very white emulsion, which will not separate.]

C. L. DIEHL: "Spirit of Nitrous Ether." [From this lengthy paper we abstract for the present only the results arrived at: 1. It is possible to obtain the quantity of distillate required by the U. S. Ph. 2. It is, however, not necessary to obtain the full quantity prescribed, as towards the end nothing but undecomposed alcohol is carried over. 3. The specific gravity of Spiritus Ætheris Nitrosi U. S. Ph., if it contains 5 per cent. of pure nitrous ether, is 0.8235, and not 0.837. 4. The preparation, if made according to the U. S. Ph., cannot contain more than 4.1766 per cent. of absolute nitrous ether (C_4H_5O,NO_2 or $C_2H_6NO_2$). 5. The method of the Brit. Ph. for determining the strength of the preparation in nitrous ether—by means of a saturated solution of calcium chloride—can be applied to the product of the U. S. Ph., and gives uniform results.]

Archiv der Pharmacie.

June. E. HEINTZ: "Analysis of Cacao and Chocolate." [From this essay we only select the author's method for ascertaining the purity of the cacao fat. He found ether to be the best test (see G. Ramsperger's paper, NEW REM., vi., 37); one part of the fat is shaken with three parts ether at 11–12° C., taking care not to heat the test-tube with the hand. Pure cacao fat, and such as contains up to 10 per cent. tallow, dissolves thereby; but in the latter case the tallow soon separates again.]

G. MANKIEWICZ: "On Soluble Ferric Hydrate." [Ferric hydrate, Ferri oxydum hydratum, may be obtained, according to the author, of a much more soluble condition than by any other process, as follows: After the solution of ferric chloride or sulphate has been precipitated by ammonia, the magma is first washed by decantation, then thrown on a strainer and exposed for twenty-four hours to a cold of about 5° C. (23° F.), so that it may thoroughly freeze. It is then brought into a warm room, and the water allowed to run off, as the ice melts. The remaining ferric hydrate needs no pressing, and is instantly soluble in acetic and other acids.]

E. SCHMIDT: "On Veratria." [The author has reinvestigated the ultimate constitution of this alkaloid, and finds it to contain $C_{32}H_{50}NO_9$, with which formula his figures remarkably well agree. Neither the sulphate nor the muriate is crystallizable.]

F. A. FLÜCKIGER: "On the Saponin of Sarsaparilla." [The author suspects that there is a whole series of "saponins," constructed after the formula $C_nH_{2n-10}O_{16}$, where the lowest term for n is 32. Flückiger proposes to retain the name of *parillin* for the principle obtained from sarsaparilla. He gives a new method for its extraction, and proves it to be a glucoside.]

Pharmaceutical Journal and Transactions. Nos. 365–369.

BALMANNO SQUIRE: "The Fixed Oil of Stavesacre." [This is a specific parasiticide for pediculus capitis, p. corporis, p. pubis, and acarus scabiei. Mr. Squire first used an ointment prepared from the seeds, but, owing to its unsightliness, later selected the oil of the seeds, extracted by ether or better by simple expression. It is colorless and odorless, and non-irritant, an important advantage it possesses over sulphur in the treatment of itch.]

D. HOWARD: "On the Distribution of the Alkaloids in Cinchona Trees."—The author has found that 'renewed' bark of *Cinchona succirubra*, and *C. officinalis*, and the root-bark of the latter, contain much larger quantities of quinidia than the natural stem-bark. The receipt of a lot of recent Darjeeling barks, comprising root, stem, and branch bark *from the same trees*, enabled the author to compare the relative quantities of alkaloids. The root-fibre was found to contain even a larger percentage of quinidia than the root itself.

Barks of	Branch.	Stem.	Root.	Root-Fibre.
Total alkaloid.....	3.3	5.5	7.6	2.0
Composed of				
Quinia.....	23.5	20.2	11.5	13.0
Quinidia.....	0.6	0.6	2.9	11.4
Cinchonidia.....	25.3	23.6	19.9	11.7
Cinchonia.....	19.4	32.8	47.3	46.7
Amorphous.....	31.2	22.8	18.4	17.2

JUL. MOREL: "The Turpentines and Resinous products of the Coniferæ." (See next number.)

W. DYMOCK: "Notes on Indian Drugs." [*Polypodium quercifolium*, local name Kadic Pan, or Kali Pandan. Used as an alterative in malarious fevers.—*Prangos pabularia*, local Faturasaliyun, vulgar Phuttersalum. The seeds are used as a carminative and abortive.—*Aconitum* (probably *palmatum*), local Wakma or Bikhma. The tuberous roots, resembling those of *A. Napellus*, have a pungent smell like nasturtium, when soaked in water. In doses of two grains, said to stop vomiting and purging, and to allay pain in the abdomen.—*Naregamia alata*, local Tinpana or Kapur Bendhi. This is the country ipecac or Trifolio of the Portuguese at Goa. The root has a pungent, aromatic odor, and is used as an emetic in doses of 12–18 grains.—*Methonia superba*, local Vindai or Nagkarna. The tubers are an alterative tonic and antiperiodic.—*Tribullus terrestris*, local Chota Gokhrov. The fruit is valued as a diuretic.—*Polypodium vulgare*, local Basfaij. The dried rhizome is aperient and deobstruent.—*Melia superba*, local Kala Khajur, or Kurroo Khajur (= black date, bitter date). The fruit has a nauseous, bitter taste, and is a favorite remedy in colic; half a fruit—one dose—is said to remove the pains effectually.]

Archiv der Pharmacie.

May. O. HEHNER: "Determination of free Sulphuric Acid, etc., in Vinegar." [Since vinegar, unless it is distilled, contains not only acetic acid and water, but also potassium and sodium salts with organic (tartaric or acetic) acids, besides sodium chloride, it is self-evident that sulphuric or hydrochloric acid, if added in small quantity to the vinegar, do not remain free, but decompose an equivalent quantity of acetate or tartrate. Now, as the organic salts are converted by ignition into carbonates, it follows, that no mineral acids had been added, if the ash of a vinegar is alkaline,

If, however, the reaction of the ash is neutral, it is highly probable that mineral acid has been added. This fact may be employed in practice to ascertain the presence or absence of mineral acids. Example: 50 c.c. of vinegar are mixed with 25 c.c. of $\frac{1}{10}$ normal solution of soda (capable of neutralizing 0.200 per cent of SO_3), the mixture is evaporated to dryness in a platinum capsule, and the residue is ignited at as low a temperature as possible. It is not necessary to produce a white ash. To this are now added 25 c.c. of $\frac{1}{10}$ normal sulphuric acid (which exactly correspond to the previously added 25 c.c. of soda solution), the solution is heated until all carbonic acid is eliminated, filtered, and, after adding a few drops of solution of litmus, the amount of acid present in excess is determined by titrating with $\frac{1}{10}$ normal solution of soda. The quantity of the latter consumed gives directly the amount of free mineral acid in the vinegar, for 100 c.c. of the soda solution correspond to 0.49 grm. of sulphuric acid.]

J. BROEKER: "How much Quinia and Cinchonia are contained in Decoctions of Cinchona Bark, which are prepared from 1 oz. of Bark and 12 oz. of Water, boiled down to 8 oz.?"—The author found the following quantities:

Decoct. Cinch. pallidæ				0.12	Cinch.	trace	Quinia.
"	"	"	+ 2 ℥ HCl	0.31	"	1.15	"
"	"	"	"	0.41	"	0.31	"
"	"	flavæ	"	trace	"	0.20	"
"	"	"	+ 2 ℥ HCl	0.31	"	1.15	"
"	"	rubræ	"	0.20	"	0.60	"
"	"	"	+ 2 ℥ HCl	0.90	"	1.18	"

E. REICHARDT: "Estimation of Glycerine in Wines." [Pasteur's process, to treat the residue left after evaporating wine with a mixture of alcohol and ether, whereby glycerine and succinic acid are dissolved, is modified by the author as follows: The extract of wine is at once mixed with slaked lime in *slight* excess. This converts succinic acid and sugar into calcium-compounds which are insoluble in alcohol. The mixture is dried and boiled with 90 per cent. alcohol, which leaves on evaporation the glycerine quite pure and almost colorless, even in the case of red wines.]*

DR. C. JEHN: "Determination of Acetic Acid." (See p. 234.)

EDWARD JOHNSON: "Determination of the Alkaloids in Cinchona Bark." (See next number.)

Journal of the Chemical Society. June.

M. M. PATTISON MUIR: "On the Solvent Action of various Saline Solutions upon Lead." [From the results obtained by the author we quote a table representing the *solubility of lead (hydro-) carbonate, $2\,PbCO_3.Pb(HO)_2$ in various dilute saline solutions at ordinary temperature.*

Solution of	Grammes of salt per litre.	Solubility of Lead Salt.	
		Experiments made in closed flasks.	Experiments made in open beakers.
Ammonium sulphate.....	0.20	1 in 32,000	1 in 43,000
Potassium nitrate.....	0.20	1 " 26,000	1 " 43,000
Calcium chloride	0.20	1 " 23,000	1 " 26,000
Ammonium nitrate.....	0.20	1 " 4,600	1 " 26,000
Water saturated with CO_2	....	1 " 4,300	1 " 4,300

F. W. PAVY: "Sugar a Normal Constituent of Urine." [The results of an examination of many samples of urine from healthy individuals, from which all those were first excluded which gave the faintest coloration with Fehling's solution (that is, which undoubtedly contained sugar), seem to prove conclusively, that a small quantity of sugar is a normal constituent of urine: about 0.565 grains in 1 pint, or about 0.05 gm. in 1 litre.]

* A good method of separating and estimating glycerine in pharmaceutical preparations, as for instance, in fluid extracts, is a great desideratum. We hope that somebody will take up this question and solve the problem.—ED. N. R.

Schweizerische Wochenschrift f. Pharmacie. Nos. 17–28.

———: "Phenol-Camphor as an Application." [Upon 12 grammes of camphor an alcoholic solution of 2 grammes of carbolic acid are poured, and when solution has taken place, pieces of lint are moistened with it and applied in a number of layers to the affected part. The whole is covered with a piece of mackintosh or rubber to prevent evaporation. It is a substitute for Lister's dressing, allays pain, and has been used with the happiest results.]

C. W. STEIN: "Remarks on Hard Glass." [Commenting upon an article on French hard glass printed in the journal, the author says that he has used capsules of hard glass for some time past, for preparing decoctions over a naked flame.—The hard glass industry appears to have made more progress in France and Germany than in England or in the United States.—ED. N. R.]

Pharmaceutische Zeitung für Russland. Nos. 8–10.

TH. ROSENBLADT: "On the Assay of Ethyl Nitrite (Nitrous Ether)." [The author's process consists in converting the ethyl nitrite into ammonium nitrite, which on heating is converted into nitrogen and water ($NH_4NO_2 = 2H_2O + N$). The nitrogen is received in a gasometer, whence it is transferred to the eudiometer and its quantity measured under the usual corrections. The process is, however, not easily applicable in practice, at least by pharmacists, as it requires considerable skill and experience.]

J. BIEL: "On the Commercial Chlorine-Derivatives of Alcohol." (See next number.)

E. HIRSCHSOHN: "On Calcium Phosphate." [The author has made extended researches as to the best method of preparing medicinal calcium phosphate which would be: 1. crystalline; 2. of uniform and constant composition; 3. easily soluble in dilute acids, especially in the stomach; and 4. the largest possible quantity which could be obtained from the materials employed. His end-results are as follows: The salt should be prepared by double decomposition of calcium chloride in excess by sodium phosphate, so that only about one-half of the calcium chloride is decomposed. 100 parts of anhydrous calcium chloride are dissolved in 400 parts of water, and 187 parts of sodium phosphate (Na_2HPO_4, $12H_2O$) in 5,610 parts of water, and the latter solution added, not too slowly, to the former, at *ordinary temperature;* the precipitate is immediately transferred to a filter, washed, and dried at 30–40° C. The product is a very light powder of the composition $CaHPO_4$, $12H_2O$.]

Pharmaceutische Zeitung. Nos. 43–56.

"Analysis of 'Liebig's Kindermehl' and 'Nestlé's Farine lactée'—Liebig's Food for Infants, and Nestlé's Lacteous Farina." [J. Mouton and Zonen, Hague, publish the following analysis:

	Nestlé's Farina. I.	Nestlé's Farina. II.	Liebig's Food.
Water.....	7.94	7.16	14.0
Ash.....	1.61	1.64	3.0
Fat.....	4.61	4.84	not determined.
Glucose.....	9.81	8.01	2.06
Saccharose.....	44.19	41.55	6.10
Starch.....	12.31	12.10	64.00
Nitrogen.....	1.08	1.02	1.55
Albuminoids.....	6.52	6.17	9.65

The report does not state why the first two analyses sum up only 88.07 and 82.49 respectively.]

E. GRAUER: "Easy Determination of Specific Gravity." [Recommends to use, in place of a spec. grav. bottle, a pipette, previously gauged with distilled water and marked with a line. At the upper end a small rubber tube with pinchcock is attached, by means of which the liquid is sucked up to the mark. It is then suspended in the balance and weighed. It may be made as small as desired, and is particularly useful for taking the spec. grav. of small quantities of essential oils.]

A. JANSSEN: "On Manna." [The author, who lives in the manna district of Italy, in the course of an interesting article on its production, mentions that upon the manna-ash, *Fraxinus Ornus*, Italian *orniello*, large quantities of can-

tharides are collected, which makes the tree of double value for collectors of drugs.]

FRISTEDT: "Aloe-cultivation on the Island of St. Barthelemy." [Aloe-cultivation on this island, a Swedish possession in the West Indies since 1784, is increasing. The expressed juice of the leaves of Aloe vulgaris is boiled down, and the product is sent to Barbadoes, where it is mixed with the middling good sorts. Many other West Indian islands likewise produce aloes, which all goes to Barbadoes.]

Répertoire de Pharmacie. Nos. 11–13.

CATILLON: "On the Use of Glycerin in Connection with Pepsin." [The author advises to extract pepsin by means of glycerin, or at least to administer it in solution mixed with glycerin, as the latter not only prevents its alteration, but also increases its digestive power.]

CAZENEUVE AND CAILLOL: "On the Extraction of Cinchonia." [The authors propose to obtain cinchonia, not as a by-product in the manufacture of quinia, but directly from gray Loxa bark, which is very rich in cinchonia, by exhausting it in their apparatus figured on page 108. The powdered bark is mixed with its own weight of slaked lime, the mixture is packed into the displacer and exhausted with commercial ether. On evaporating off the latter a residue of a yellowish white color is left. This is taken up by boiling alcohol and treated with a little animal charcoal, when it will, on evaporation, leave crystals of pure cinchonia. Cinchonia is ordinarily but little soluble in ether; but under the above conditions, when extracted by lime from the vegetable tissue, it is dissolved by it. Alcohol or chloroform are inconvenient, as they dissolve too much of the coloring matter.]

J. LEFORT and F. WURTZ: "On the Preparation of Emetia." (See p. 237.)

Liebig's Annalen der Chemie. 188, 1. 2.

WILH. v. MILLER: "On the Chemical Compounds in Liquid Storax." [Besides the bodies previously known to exist in storax, viz., *styrol*, *cinnamic acid*, and *styracin*, the author has proved the existence therein of the following bodies: A considerable quantity of phenylpropyl cinnamate ($C_{18}H_{18}O_2$); ethyl cinnamate ($C_{11}H_{12}O_2$) in small quantity; a very small quantity of a substance having the odor of vanillin, and forming a crystalline compound with sodium bisulphite; a small amount of a resinous unstable body; very considerable quantities of two alcohol-like bodies—α and β storesin; cinnamic ethers of the latter; and a sodium compound of storesin in very small quantity.]

Berichte der Deutschen Chemischen Gesellschaft. Nos. 10–12.

L. BRIEGER: "On the Volatile Constituents of Human Fæces." [Showing that the normal intestinal digestion consists mainly of a putrefaction, primarily induced by the decomposing action of the pancreatin upon albumen and gelatin. The author has found in the distillate from fresh fæces the following substances: acetic, normal butyric and iso-butyric acids; phenol, indol, and a new body, named *skatol*, crystallizing in white laminæ, and possessing a most disagreeable, specifically fæcal odor.]

Pharmaceutische Centralhalle. Nos. 21–26.

"Danger of Fire from Zinc-dust." [Zinc-dust is an article employed by dyers, chiefly as a reducing agent, and consists of about 40 per cent. of zinc, 2½ per cent. lead, 4 per cent. cadmium, 50 per cent. zinc oxide, 3½ per cent. zinc carbonate. This is a dangerous substance when damp or wetted, as it is capable of decomposing water and setting fire to the liberated hydrogen. A case of fire on board the steamer Lord Clyde has drawn attention to this dangerous substance.]

S. SIEBERT: "On Dialyzed Iron." [In the course of his remarks the author suggests that there is probably no specific difference between a solution of ferric chloride saturated with ferric oxide, and a solution of dialyzed iron. Incidentally he remarks that it is above all necessary to *wash the precipitated ferric oxide until every trace of foreign salts has been* removed; otherwise the product is liable at any time to gelatinize.]

ORIGINAL COMMUNICATIONS.

SODA-WATER APPARATUS.

PRACTICAL HINTS CONCERNING ITS SELECTION AND MANAGEMENT, AND SUGGESTIONS AS TO THE BEST METHODS OF MAKING AND DISPENSING CARBONATED BEVERAGES.

(Concluded from page 211.)

Some years ago an intelligent gentleman had occasion to call, early in the morning, at a prominent Broadway pharmacy. Standing near the large and showy soda-water apparatus, which formed one of the principal features of the store, he chanced to observe some drops of a green liquid on the marble counter, under one of the syrup-faucets. Somewhat surprised, he innocently inquired, "What green syrup is this? Something new?" "Oh, no," replied the clerk, "that's lemon. It's always green in the morning, after standing all night." The clerk did not think it necessary to further explain that this beautiful green tint was due to poisonous contamination from the copper tank and brass faucets in which the syrup was contained! Such was the fact, however, and cases as bad as this are still unfortunately too common. The danger of metallic poisoning from the apparatus for dispensing soda-water lurks in precisely those parts which it is the most difficult for the purchaser to examine and judge of, and even a careful and intelligent druggist cannot reasonably be expected to detect all the objectionable features of an apparatus "made to sell," unless he has had some such thorough and impartial exposition of the subject as we are about to give the readers of NEW REMEDIES.

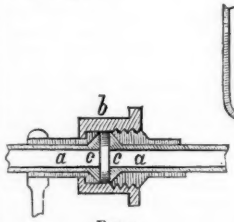


FIG. 1.

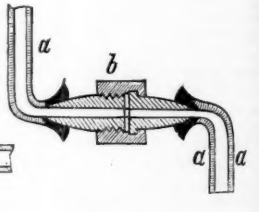


FIG. 2.

Even in conveying the carbonated water from the fountain to the cooler there is ample opportunity to contaminate the beverage. In the West and South, incredible as it may appear, lead pipe is not infrequently used. This, of course, is highly objectionable and should not be tolerated for a day. Tin pipe, lead-encased, serves a much better purpose, but block-tin pipe is really the only kind that should be employed. Lead and lead-encased tin resemble each other so much that a tricky manufacturer or repairer may easily palm off the inferior article for the better one. Furthermore, the difference in cost is so slight that the use of the cheaper pipe involves no saving to the purchaser, and the manufacturer who adopts or recommends the tin-lined pipe is thereby convicted of a parsimoniousness that augurs ill for his apparatus. Insist, therefore, upon pure, solid block-tin pipe, which speaks for itself, and cannot be tampered with by any tricky plumber. Besides, it is more durable than the other kind and, most important of all, it is impossible for it to impair the purity of the soda-water under any circumstances.

The use of block-tin pipe, however, is not the only point to be insisted on. Particular attention should be paid to the "couplings" by which the pipe is attached to the fountain, passes into the dispensing apparatus, and enters and leaves the cooler. These are made of brass, and are usually soldered to the pipe, and the inner surface of the coupling, even when tin-washed, soon begins to taint the water stand-

ing in it with a pernicious mixture of copper and zinc. This is best guarded against by running the pipe (Fig. 1, *a*), clear through the couplings (*b*), and melting the tin down to fill a bevelled hollow (*c*) in the end of the coupling. Fig. 1 shows how this is done, and Fig. 2 illustrates the common and objectionable method of merely soldering the pipe and the coupling together. The absence of solder at this point of junction, and the appearance of the tin at the opposite end, are signs by which the most inexperienced purchaser may know that the couplings can be relied on not to injure the beverage. It will not do to neglect this point, however trifling it may seem, for all the water used passes through these couplings, generally with considerable rapidity, and the wear is much greater, and, if the poisonous surfaces are tin-covered, much more deleterious than the wear upon a corresponding area of poisonous surface in the fountain.

We have now brought the water safely to the dispensing counter, and introduced it into that more or less ornamental external marble shell, which is the only part of the apparatus that the public is at all familiar with, and too often the only part that the druggist is solicitous about or willing to pay liberally for. Beginning our inspection of this at the base, we find a wooden bottom designed to support the weight of the cooler and the ice. This should be of chestnut or some other durable wood, and should not be merely screwed to the marble, but supported by metal brackets in the corners of the marble case, or, better still, by double brackets sufficient to hold the bottom securely in place, even without any screws in it. The use of pine or other soft wood in an apparatus of any pretensions is a sure sign of questionable work.

On this bottom rests the metal ice-receiver, separated from the marble by a refrigerating air-space. The quality most essential to this receiver is strength sufficient to resist the pressure of the ice, even when rudely and hastily thrown in; iron and steel cannot be used, as they would rust, and copper is therefore generally employed. As this metal is rather expensive, there is a temptation to make the receiver thin, and brace it with strips of wood between the receiver and the marble. This is a poor makeshift, however, a much better and yet not expensive plan being to make a stout zinc receiver and strengthen the lower part, where the strain is greatest, by placing it in a snug-fitting copper tray, some inches in depth.

This receiver is not only an ice-chamber, but contains, besides, two of the most important parts of the apparatus —the coolers and the syrup-tanks. The two great requisites in soda-water coolers are perfect protection from metallic poisoning, and such a form and position as shall secure the maximum of refrigeration with the minimum amount of ice. As to form, they may be either coils or cylinders, or a combination of the two. The simplest is a single cylinder. All cylindrical coolers are made of copper, as iron or steel would rust, and the other metals are too weak or too expensive. These coolers are often tin-washed, although all the objections, heretofore rehearsed, to tin-washed copper fountains apply with equal force to the tin-washed copper cooler. The only safe cylindrical cooler has a lining of pure sheet-tin, entirely distinct from the copper which encloses it. In the best of these the copper jacket is made in two halves, put over the tin and soldered around the middle, leaving a loose joint in the copper where the pipe enters or leaves the tin cooler. This loose joint could not be left in a tin-washed cooler, and is therefore proof positive that the cylinder is properly lined. If it is soldered, you will have to rely on the statements of the manufacturer or his agent as to the "true inwardness" of the cooler.

A single large cylinder, though simple and easily made, is not the most effective or economical cooler. If of large diameter, the inner portion of its contents is but little affected; if of greater length, more ice must be used to keep it covered. This is supposing it to be in an upright position; placing it horizontally is an improvement, and the employment of several small cylinders instead of one large one is still better. The extension of this principle naturally leads to the pipe-coil, which is merely a cylinder of very great length and very little diameter. Block-tin pipe is, of course, to be used for this purpose, for reasons already specified. For a long time even the best manufacturers made these coils with closely-laid pipes, and, thus made, it was an open question whether coils or cylinders yielded the best results. Theoretically, the ice, as long as any of it remained unmelted, rested directly upon the coil and kept it constantly covered. Practically, however, the refuse in the ice settled in the furrows between the pipes and formed a non-conducting layer; this checked the melting along these lines so that the more rapid melting over the intermediate, uncovered spaces, tended to hollow out channels and produce the effect illustrated in Fig. 3, where it will be seen that the ice (*a*) rests on the deposits of refuse (*b*, *b*, *b*), and is actually nowhere in direct contact with the pipes (*c*, *c*, *c*). This very undesirable state of things can only be prevented by taking special pains to wash out the receiver as often as twice or thrice a week, and clean the refuse off the pipes thoroughly with a brush or whisk-broom. All this trouble can be avoided, however, and much better results attained by using the "interspaced" coil, shown in Fig. 4. Here it will be seen that the refuse drops between the pipes (*c*, *c*, *c*), and the ice in melting adapts itself to the shape of the coil and closely embraces nearly or quite half of its surface. Experience goes to prove that this coil produces the very best refrigerating effects with the most economical use of ice—points of prime importance to the drinker's palate and the dispenser's pocket. The objection to cylinders, however, provided always that they are tin-lined and not tin-washed, is merely one of economy, as excellent results may be attained with them by the lavish use of ice. In the best (or so-called helical cylinders) the water is so introduced as to flow through them in a spiral current, thus producing a more thorough and uniform cooling.

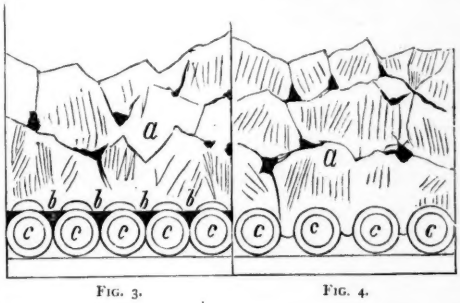


FIG. 3.

FIG. 4.

The adoption of coils in preference to cylinders was materially hindered for some time by the fact that the gas has a tendency to separate from the water, collect in the upper part of the cylinder or coil, and then rush out when the draught-arm is turned, causing a great waste of gas with consequent deterioration of the beverage, and a jerky sputtering and highly unpleasant flow of the water. There seemed to be no remedy for this when coils were used; but it was found possible to prevent it to some extent with coolers of the other form by running a curved pipe from the draught-arm to the water in the bottom of the cylinder, and then providing a vent-valve to draw off the excess of gas in the upper part thereof. This way of meeting the difficulty was awkward, expensive, and ineffective. The sputtering was only partly avoided; the waste of gas was not at all checked; the vent was liable to leak and could only be used at random, as there was no means of telling how much gas the cooler contained. Not only was the pungent quality of the beverage greatly impaired by the actual loss of gas, but the refrigerating process was also materially interfered with by the interposition of a volume of gas between the ice and the decreased volume of water in the cooler. This, in turn, aggravated the primary evil, as carbonated water gives up its gas the more freely the the warmer it is. This vexatious state of things appeared for a long time to be incurable, but the whole trouble was at

last done away with by one of the simplest and most effective devices in the whole range of mechanical apparatus. This contrivance, invented about four years ago by Mr. Thomas Warker, of this city, merely consists in punching a number of small holes in the upper portion of the bent-pipe running from the bottom of the cylinder to the draught-arm. Fig. 5 shows a cylinder (*a*), under the old system, more than half filled with gas (*b*), which escaped through a pipe (*c*), in connection, but not in combination, with the water, thereby causing the sputtering, or else was drawn off through the vent-valve (*d*). In Fig. 6 the same cylinder is shown with the small holes (*e, e*) serving as a vent. Through these the gas escapes in minute portions whenever the water is drawn, mixing evenly with it, and thus not only causing it to flow smoothly and regularly, but greatly increasing its pungency.

In the best apparatus now made, a small cylinder, containing a bent pipe pierced as in Fig. 6, is placed between the interspaced coil and the draught-arm. This "steady stream" attachment, as it is called, cures the sputtering, and thus economizes the gas and improves the quality of the water; it prevents all interference with the refrigerating process, and thereby improves the water still

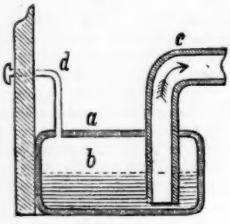


FIG. 5.

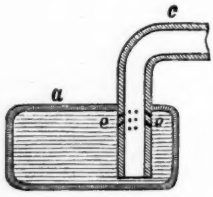


FIG. 6.

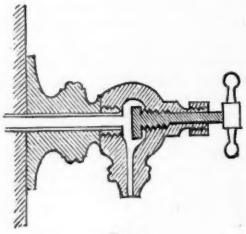


FIG. 7.

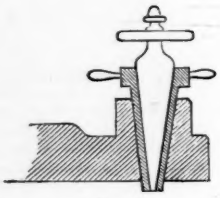


FIG. 8.

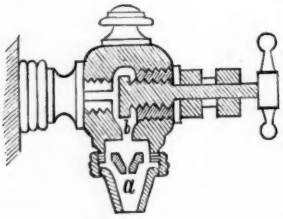


FIG. 9.

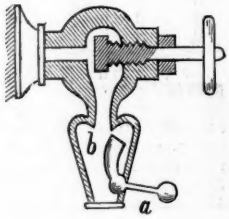


FIG. 10.

more; and it also obviates completely the necessity for the vent-valve. Perhaps the puncturing of a few little holes never accomplished a more useful result since the genius of mankind first began to expend itself in mechanical invention. The cylinder containing the "steady stream" pipe serves a good purpose as an auxiliary reservoir of cooled water, the coil sometimes not containing enough to supply a rapid succession of customers. The making of the cylinder in two separate shells of copper and tin, with a slight air-space between, improves it for maintaining the degree of cold obtained in passing through the coil, although this construction is somewhat disadvantageous in cylinders used directly for cooling purposes. Where several beverages are dispensed, the soda-water cooler should be placed in immediate contact with the ice, as a high degree of cold is more desirable with this beverage than with ordinary mineral waters.

We come now to the draught-arm or faucet, through which the beverage is discharged from the cooler into the tumbler. As to material, the thing to avoid is tin-washed brass thinly plated with silver. Solid tin is the only permissible metal for the interior, while bronze, heavily silver-plated, is decidedly the best for the outside. In construction, the compression faucet (Fig. 7) is at once the simplest, most durable, and most efficacious. The common plug-faucet (Fig. 8) has found favor in some quarters, especially with inventors who have sought to draw both water and syrup from the same arm, thus avoiding the necessity of moving the tumbler. Such devices, however, are too complicated for advantageous practical use, and the rubbing together of the two large surfaces of brass involves a constant wearing off of metallic particles, not only defiling the water, but soon causing leakage. One manufacturer gravely directs that the plug be rubbed well with tallow, to reduce this wear! The unctuous green particles likely to appear in the tumbler now and then, under this system, would hardly be relished by the drinker, however much "green fat" may be prized by turtle-loving epicures. In some cases an extra shell is inserted between the plug and the outer shell, thus giving four wearing surfaces of poisonous metal. As to shape and size, the draught-arm should be as short and straight as possible. "Goose-necks" are more graceful, but they necessarily contain a certain portion of water which loses its coldness if it stands for any length of time, and a picturesque draught-arm is no adequate equivalent for half-cooled soda-water. Not only is the water in the arm heated, but more or less heat is absorbed and conducted to the cooler, and consequently the smaller the arm the better it is in this respect.

All well-made draught-arms have some mechanical contrivance for obviating a difficulty that always arises in drawing a carbonated liquid, namely, the dissipation and waste of gas caused by the naturally rapid and violent discharge of the liquid under pressure. The agitation of the water in the partly filled tumbler, as the stream dashes swiftly into it, involves a ruinous loss of gas; and yet, where syrup is used, some degree of force is necessary to mix it with the water. One way of meeting the difficulty is to use a draught-arm, with two handles and two separate faucets inside, one discharging a small swift stream to mix the syrup, and the other a larger and presumably slower stream to fill the glass. By another contrivance (Fig. 9), raising the edge of the partly filled tumbler against the end of a little lever (*a*) projecting from the side of the draught-arm, brings the other end of the lever just below the inside vent of the faucet (*b*), thus breaking up the swift stream and compelling it to flow from the nozzle of the arm in a larger and slower current. A still simpler device (Fig. 10), now employed in the best apparatuses, consists simply of a bridge placed across the inside of the arm, with a small funnel-shaped hole (*a*) directly beneath the faucet-vent (*b*). A part of the

flow rushes at full speed through this hole, while the rest strikes on the bridge and is thus diffused and checked in its escape. This gives a small swift stream surrounded by a large slow one, thus securing a thorough mingling of the syrup, and at the same time a very small loss of gas.

The reader who has attentively followed our remarks, from the entrance of the fountain to the nozzle of the draught-arm, will be prepared to accept the conclusion that, as a general rule, *in the best apparatuses, considered with reference to purity, durability, and reasonable cost, the soda-water is in contact, from beginning to end, with pure tin in pipe or sheets, and with no other metal.*

But while this rule applies to the carbonated liquid, it does not at all apply to the syrups. Sugar in solution, according to Pereira and others, has a deleterious chemical action upon tin, and it is certain from experience that the more acid syrups, when kept in contact with this metal, receive an injurious taint. When syrups were first introduced as ingredients in soda-water, they were kept in bottles and dispensed by hand. To facilitate this process, faucet syrup-tanks of metal were soon introduced, but the increased convenience of these was generally attended by a great sacrifice of purity. Zinc tanks are doubtless the worst, being even more intolerable than lead pipe. Fortunately these are rare, but copper tanks, more or less tin-washed, are only a little better, and are, unluckily, in very extensive use. Syrup from such tanks has repeatedly caused drinkers to vomit almost before reaching the street. Tanks of tin are better than copper ones, but still are seriously objec-

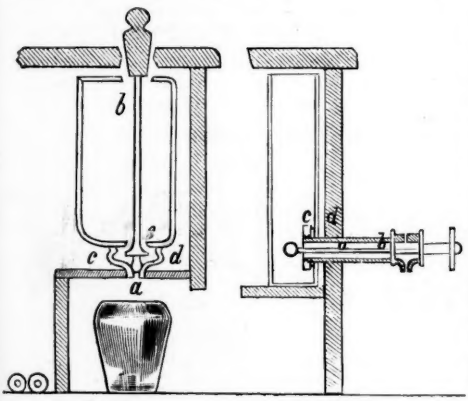


FIG. 11.

FIG. 12.

tionable. Gray earthenware tanks serve a very good purpose, and do not injure the syrup; but the white and yellow ware is suspicious, as it is liable to be glazed with a mixture containing lead. The very best material for syrup-tanks, however, is glass. Besides perfect purity and moderate cost, its transparency is a very desirable feature in an article which it is so important to keep perfectly clean.

It is still a very common custom to make syrup-tanks immovable, and to draw their contents by means of metal faucets opening through the marble front of the apparatus. Long experience proves that syrup-faucets are an expensive nuisance. Plug-faucets are poisonous, and soon become leaky and generally intolerable; compression faucets are better, but are open to the grand objection to all syrup-faucets, that they prevent the ready removal of the tank from the apparatus for the purpose of cleaning and filling.

Besides purity, transparency, and reasonable durability and cheapness, which are secured by using strong glass, the desiderata in a syrup-tank are portability, simplicity in construction, and cleanliness in operation, coupled with the smallest chance for leakage, and furthermore, some device for measuring the amount of syrup discharged. Portability is most readily gained by making a chamber in the apparatus under the tanks and discharging the syrup at the base, as shown in Fig. 11, thus avoiding faucets altogether. This is done most effectively by means of a valve (*a*) of hard rubber, worked by a handle (*b*) of the same material, extending up through the syrup to the top of the apparatus. A chamber (*c*) at the base of the tank contains a measured quantity of syrup, which is all discharged when the valve (*a*) is rapidly drawn up, another valve (*d*) closing the opening above (*c*) and the air escaping through the hollow handle (*b*). When drawn partly up, less syrup is discharged, and when drawn up slowly, more escapes. In Fig. 12, the space between the pistons (*a* and *b*) is a measuring chamber. It should be observed that there is a chance for leakage under the nut (*c*), or past the washer (*d*) into the ice-chamber, whereby much syrup is sometimes wasted before the druggist suspects anything wrong. Note, also, that wear of the edges of the pistons is sure to cause leakage from the nozzle sooner or later. A particularly objectionable feature of this and many other faucet-tanks, is the fact that the syrup below the level of the faucet can only be removed by diluting it with water and "swabbing" it out—a tedious and ineffective process. In the improved tank (Fig. 11) leakage cannot possibly occur, except at a single point, and, as the valve (*a*) automatically compensates for its own wear by settling down further, such leakage can hardly occur. The simple construction of this tank is self-evident. Its cleanly operation appears from the fact that the impetus of the falling handle drives off the drops which stick in the nozzle of an ordinary faucet, attracting flies and catching the dust. As it is customary to keep tumblers in the chamber under the tanks, which chamber is generally closed by a door, the syrup-vents are fully protected from flies and dust, and any syrup that might escape is caught in a tumbler, thus absolutely preventing waste.

Where fixed tanks are used, earthenware is to be preferred, as the frequent turning of the faucet is more liable to wrench and break glass, the transparency of which is of no advantage unless the tank is portable. Be sure, also, that the faucet opens into the tank at the base, so that the contents can be entirely drawn off. Rubber rings or cups form the best connection between the tanks and the faucet, and it is claimed that some tanks thus joined can be detached and replaced without disturbing the faucet; but this would require unusual skill, and great loss by leakage would ensue from an imperfect rejoining.

Inasmuch as the public has a right to demand perfect purity in any beverage sold at a reputable pharmacy, it follows that no druggist should rest satisfied unless his tanks are of glass or gray stone-ware. If of any other sort, he should test the syrups at regular intervals, and as soon as he finds any serious trace of metallic contamination, he should get new tanks without delay. Fortunately the portable glass tanks, which insure the highest degree of purity, are also the most convenient and economical, and can be readily introduced into any apparatus, and their adoption is the only radical remedy for the numerous evils of metal tanks and faucets.

As to the external marble case of the dispensing apparatus, not much needs to be said. The style and degree of ornament are matters of individual taste, and do not affect the quality of the soda. Buy nothing, however, in which the slabs of marble are merely screwed to each other, as such a construction is inevitably weak, and remember that inside brackets to which the marble is screwed are decidedly better, as a means of strengthening, than outside clamps. The variegated dark-colored marbles are more expensive, but they are also generally harder and more durable, as well as more beautiful, than those that are white or light-colored. Avoid much metal work, unless you are sure it is heavily plated, as it has a very shabby look when the base metal begins to show. Crystal domes, fountain attachments, gas-burners, fancy signs and the like, are well enough in their way, but it is arrant folly to spend money on these unless the interior of your apparatus is as pure and fresh as tin and glass can make it, and unless you are provided with all the improvements for maintaining and improving the quality of the beverage, and for securing economy, safety, and convenience in making and dispensing it.

The care of the dispensing apparatus is simple enough, but still it is apt to be neglected. See that the ice-receiver

is kept well supplied, and have it thoroughly washed out once a week, or oftener, if a coil cooler without spaces is used. It will pay to empty and clean the syrup-tanks every day, and this can easily be done if they are portable. It is well to wash them with a mixture of three ounces of soda or potash to a gallon of tepid water. A similar mixture may be used to wash the marble. Keep the metal-work well polished; see that everything about the apparatus is neat and orderly, and remember that perfect cleanliness is the best show-card you can have. Be sure that the attendant keeps the tumblers well washed, rinsed and cooled, as a dirty, dusty, or heated tumbler will go far to spoil an otherwise delicious drink. The brush tumbler-washer, which cleanses both the inside and the outside of the tumbler simultaneously, is an excellent thing to have; and a cooling chamber where a number of glasses may stand under cover, close to the ice-chamber and ready for instant use, is a feature that all apparatuses should possess.

Next to perfect purity, which is the first and great essential, the qualities most important in good soda-water are: pungency, depending on the presence of an abundant supply of gas; coolness, which is the result of a judicious mixture of ice and brains; and fine flavor, which can only be secured by means of fine syrups. The importance of these qualities may be illustrated by reference to Delatour's soda-water stand in Wall Street, which maintained for many years an extraordinary popularity, though the beverage was dispensed in a way so rude as to be almost picturesque. The fountains were placed in an ice-house and thoroughly refrigerated before charging—the cold water, of course, imbibing the largest amount of gas. Then they were snugly packed with ice in large tubs, as ice cream freezers are packed, and conveyed to the Wall Street store. Reaching there, a "goose-neck" was attached to the fountain, and, without removing it from the ice, its contents were drawn for the customers, scores of whom often stood in a long queue waiting their turns! The syrups used were extraordinarily thick and rich, and were kept in bottles on ice till they were called for. The trade was limited to the four or five hours of greatest activity in Wall Street, but the business done has, perhaps, never been surpassed, or even equalled, at any other soda-water stand in the world.

The moral of this is evident enough. The man who would succeed in the soda-water business must add to purity, pungency, and to pungency, frigidity, and to frigidity, flavor. Then may he fairly expect to see the public flocking to drink the icy beverage that

> "Dances in its crystal bounds,
> With fragrant syrups mixed."

Feeling the Pulse by Telegraph.—Some months ago Dr. Upham, of Salem, Mass., in order to explain to his audience the variations of pulse in certain diseases, caused the lecture-room to be placed in telegraphic communication with the city hospital of Boston, distant 15 miles, and by means of special apparatus the various pulse-beats were exhibited by a vibrating ray of magnesium-light upon the wall. These experiments have lately been repeated at Paris with success.

Slate-Paper.—Prof. Marx, of Stuttgart, has originated an exceedingly handy method for preserving drawings or diagrams made with chalk upon a black surface for lecture purposes. It is frequently necessary to place figures or drawings upon the black-board, which have to be wiped off again, and have to be rewritten every time they are wanted. He has caused the firm of C. Lienhard, of Stuttgart (manufacturers of paper-hangings), to make an endless, dead-black paper, 1 metre wide, of which a piece of the necessary length is cut off and pinned upon a flat surface. When the drawing or writing is finished, the chalk is fixed upon the paper with a dilute solution of shellac made by dissolving 50 gm. of bleached shellac in 1 litre of alcohol of about 85 per cent., and filtering. This solution is applied by means of a spray apparatus. The chalk-marks disappear at first, but reappear on drying.

COMMERCIAL DRUGS OF THE CHINESE PROVINCE OF KUANG-TUNG (CANTON).

BY DR. F. HIRTH DU FRENES, OF AMOY, CHINA.

(Concluded from page 180.)

In reference to *Galangal* or *Galgant* root, of which we have spoken above,* it may not be out of place to remark that its botanical source has been ascertained only a few years ago by Dr. H. F. Hance, English vice-consul in Whampoa, and probably the greatest living authority on the flora of Eastern Asia. He found specimens of the plant in the neighborhood of the city of Hai-an-so, on the south shore of the peninsula Lei-chou, which runs out towards the island of Hai-nan. The results of his investigations were published in the 13th volume of the *Journal of the Linnæan Society.*† According to these, the plant is a new species of Alpinia, designated as *Alpinia officinarum*, and is found native in Kao-chou-fu, in the district Hsü-wen (situated in the most southern part of the peninsula), and upon Hai-nan. A Chinese work on the geography, products, etc., of this district, entitled "Kuang-tung hsin-yü," or "New Reports on Canton," contains the following passage on *galangal:* "The root of this plant resembles ginger, and is used as a drug; the seed occurs in the market under the name of 'red cardamoms' (hung-tou kou-tzu), and is said to have purgative properties, when eaten in an unripe state. The natives use these red cardamoms, pickled in sweet sam-shu [a Chinese rice- or fruit-wine], as condiment for meats or fish. Towards the end of winter, that is, in January and February, the seed looks like a piece of amber, has a bitter, aromatic taste, and forms a grateful addition to chopped meat. The root is not used as food, but only as medicine; hence it bears a name different from that of the plant."

The list of commercial drugs which form important articles of exportation, is, according to our showing, not very large; but the home-trade in domestic products is exceedingly active and extended. Among these, *sugar* undoubtedly occupies the front rank, although the market of Canton cannot bear comparison, in this respect, with those of Swatow, Amoy, and Takow.

Plantations of sugar-cane are found along the shores of nearly all the rivers of the province, chiefly along the Eastern River; and in the districts of Pan-yü (Eastern Canton), Tung-Kuan and Tseng-cheng, nearly 40 per cent. of the arable soil is planted with sugar-cane. In the centre of this region lies the city of Shih-lung (or Shek-lung), which is the principal market for this industry. Another important sugar district extends along the shores of the small river Mo-yang, which empties into the sea opposite the island Hai-ling-shan. In the district of Yang-chun, which occupies about the middle course of the just-mentioned river, where the latter flows through a fertile valley between low mountain chains, six-tenths of the cultivated soil are made to produce sugar.

Next to sugar *betel* deserves particular mention. The areca-palm, from which betel is obtained, is found abundantly upon the island of Hai-nan, upon the opposite peninsula of Lei-chou, and in the department of Lien-chou-fu, which extends along the northern shore of the bay of Tung-King (Tonquin). The betel produced in the district of Hui-tung, at the west coast of Hai-nan, is considered the best; next to it is said to rank that coming from Lo-hai.

The neighboring sea furnishes *Agar-Agar*, a gum-like mass obtained from a species of algæ, which is used for sizing and calendering paper and silks, for giving a transparent coating to the gauze-covering of lanterns, and many other purposes. It is principally collected by the fishermen of Hui-tung (at the seaport Sha-lao), on the east coast. Upon the small rocky islands of the south coast, near Ai-chou are obtained the well-known *eatable swallow-nests*, and large quantities of shells, often of great beauty and rarity.

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* *June Number*, p. 180. † *Journ. of Linn. Soc.*, 1873, 1.

AN IMPROVED CONDENSER.

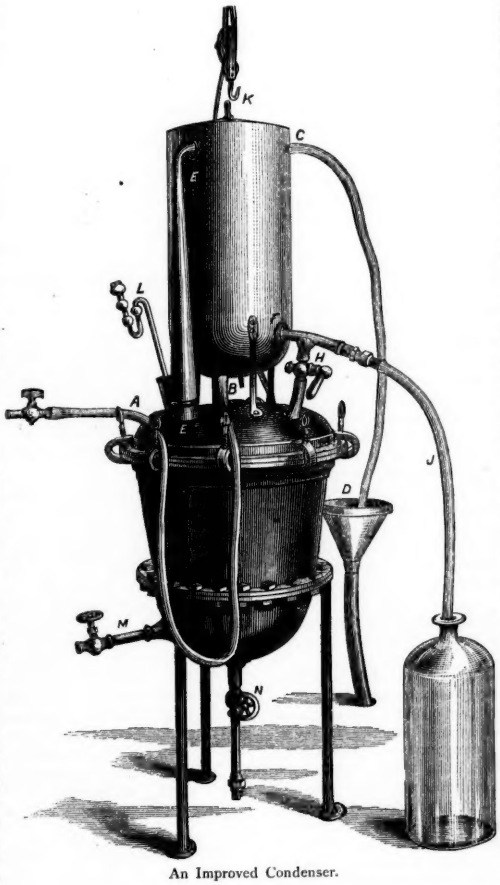
BY CHARLES RICE.

THE stills which are used by pharmacists or chemists are usually provided with a head terminating in a tapering pipe, which is intended to be connected to the worm or condenser. This connection, however, is, in many cases, quite awkward, and often a source of loss from leakage. Those who have had much occasion to work with such an apparatus will fully appreciate the truth of this. In large stationary stills, used on a manufacturing scale, the condenser consists of several parts: the so-called column, a series of vessels, which the vapors have to traverse, and in which all that part of the vapor condensable below a certain temperature, is reduced to the liquid condition, and returned to the still; and in addition to this a regular worm or condensing cooler. Such arrangements are, however, too circumstantial for small stills.

To obviate the difficulties above mentioned, the writer has constructed a new form of still-head and condenser, which completely answers all demands made upon it. It requires only *one* packing, may be used as a reflux-condenser, and saves a great deal of room, from the fact that a special worm-tub is made unnecessary. The annexed cut gives a very correct representation of the apparatus.

It consists mainly of two parts: the still and the head with condenser. The still has a capacity of sixteen gallons, and is heated by steam, which enters at *M*, *N* being the exhaust-pipe. The still-head is constructed of tolerably heavy copper, to be able to bear the weight of the condenser, which is fastened to it by three iron legs, attached with rivets. The condenser is a cylindrical copper vessel, of the capacity of about ten gallons, with rounded bottom and closed top, having short half-inch tubes projecting from the bottom and from the top—at *B* and *C*. There are two such tubes at the bottom, one for attaching the rubber-hose *A* bringing the water; the other, shown in the cut immediately alongside the letter B, is closed with a cork, and is used to permit the water to be emptied without detaching the hose from the other. At the top there are likewise two tubes, one at *C*, for attaching rubber-hose to carry off the water into the waste-pipe *D*; the other, being closed with a cork, is not shown in the cut, as it is on the back of the condenser.

The head of the still carries three short tubulures, only one of which is visible in the cut, and which contains a cork bearing the safety-valve, *L*. Another opening is at the other side, for refilling the still when required; and still another narrower tube, intended for the insertion of a thermometer. The condensing-pipe begins at *E*, where it rises from the head parallel with the condenser. It is made of copper as far as the point indicated by the upper *E*, where it is soldered to the *downward projecting* upper end of the block-tin worm contained in the condenser and emerging from it at F. This arrangement makes it impossible for any condensed liquid to come into contact with anything but block-tin. The worm, inside the condenser, is made by carefully winding upon a round block of wood twenty feet of three-quarter inch block-tin pipe, taking particular care that the coil has a uniform downward descent throughout. After emerging from the condenser at *F*, it extends for a short distance, where the cut shows it to be connected to the separate block-tin pipe *J* by means of a union joint lined with tin. Half way between *F* and the end proper of the worm the pipe is tapped and a branch, carrying the faucet *H*, leads into the still at *G*, where it terminates under the centre of the head in the form of an ∽, forming a trap to prevent the escape of vapors by this passage. The object of this arrangement is to cause the condensed liquid to flow back into the still as long as the faucet *H* is open, or to collect it outside by turning off the faucet *H*. Prolonged digestions with alcohol may be made by means of this apparatus, without any loss of liquid. The head is attached to the still by means of a rubber washer and iron clamps, and when it is desired to remove it, the water is allowed to drain from the condenser, the clamps are removed, and the whole is hoisted up by the tackle *K* and set on one side.



An Improved Condenser.

To illustrate the use of the faucet *H* by an example, we will suppose that we have to completely exhaust 10 lbs. of powdered Nux Vomica. Into a frame fitting into the upper part of the inside of the still is fitted a broad, short copper percolator, which is packed with the powdered nux vomica. The head and condenser being connected with the still, about three gallons of alcohol are poured into the still, and the water having been turned on the condenser, and flowing briskly, steam is carefully turned on at *M*. The faucet *H* is kept closed as yet, and the pipe *J* is made to point into a receiver. As soon as condensed alcohol flows into the latter in a steady and uniform stream, the faucet *H* is opened, when the flow of alcohol returns to the still, and empties itself from the end of the ∽ over the centre of the percolator. From time to time the faucet is closed, and the regularity of the flow is observed, as it empties itself into the receiver. After a certain lapse of time, depending upon various circumstances, and mainly upon previous experience,—in the present instance, after about 4 hours,—the nux vomica is completely exhausted, and the last part of the operation consists in turning off the faucet, and permitting all the alcohol to run into the receiver.

The writer is in the habit, when using the apparatus for such purposes, to place into the still two gallons of ordinary glycerine, and into this a large porcelain pot, supported in

such a manner that the glycerine surrounds it on all sides up to within about four inches of the top. The liquid to be distilled, f. i. alcohol, is placed into the dish, the distillate, if required to be used as a continuous menstruum, is made to run back into the still, where it flows into the dish, and finally, after distilling off the alcohol, the dish is removed with the extract contained in it. If the tincture is allowed to run directly into the still, and the alcohol is distilled off, it requires considerable labor and waste of alcohol to remove the extract, besides incurring the danger of overheating and almost baking it.

In all cases, when possible, it is recommended to place into the still a preliminary charge of water, say one-half to one gallon, and to distil this over to dryness. The packing thereby swells up and becomes tight, so that when the alcoholic liquid is introduced no loss will be incurred.

The apparatus is *not* patented, and the writer places it at the disposal of any one who wants to use it. It will be made at very reasonable prices, and of superior workmanship, either the still and condensing head together, or condensing head alone, by John H. Heynen & Co., 246 Water Street, New York.

CONTRIBUTIONS FROM THE SCHOOL OF PHARMACY, UNIVERSITY OF MICHIGAN.

1. Estimation of Arsenic in Wall-Paper and Green Tarlatan.

BY ABRAM P. KERLEY, PH. C.

FIFTY samples of wall-paper were examined, and twelve were found to contain arsenic. The arsenic was present either as arsenite of copper, or aceto-arsenite of copper.

Two samples, not reported, which contained no green color, were found to contain arsenic, and several papers with green figures contained no trace of arsenic.

Six samples of green tarlatan, all that were tested, were found to contain large amounts of aceto-arsenite of copper. The higher the price paid the more arsenic was found. The green coloring matter was held more firmly to the fabric by means of gum arabic and starch.

The following are the methods of analysis: In the preliminary, qualitative analysis, the sodium amalgam test* for arsenic was employed, and proved very satisfactory and delicate.

All the usual tests for arsenic and copper were also applied. The quantitative estimation was conducted as follows:

Treated the paper with warm dilute hydrochloric acid, of twelve to fifteen per cent., filtered; added potassium hydrate to precipitate copper and other bases; boiled, filtered, acidulated the filtrate with hydrochloric acid, and treated with hydrosulphuric acid until all the arsenic was precipitated. The precipitate was well washed on a filter, dissolved in ammonium hydrate; this solution evaporated to dryness in a porcelain crucible, and treated with nitric acid to change it to arsenic oxide, in which form it was weighed.† From this result was calculated the amount of "Paris Green" in the sample. In case the final residue was colored by organic impurities, it was heated carefully with ammonium nitrate and nitric acid. This treatment effectually destroyed the organic matter.

From the results tabulated below, it will be seen that a room sixteen feet square and nine feet high will have spread upon its walls, provided any of these papers are hung, from fifty-two grains to more than eight ounces of poisonous green coloring matter. We may also calculate that a green tarlatan dress of sixteen yards will contain nearly five and one-half ounces of this same dangerous "Paris Green."

The remedy is simple: be careful not to buy such wall-papers or dress goods.

* E. W. Davy, *Chemical News*.—NEW REM., v., p. 108.
† Vaughan and Douglas—*American Chemist*, March, 1877.

Amounts of "Paris Green" in Wall-papers. One square yard of each sample.

No. 1,	56.89 gr.	aceto-arsenite of copper, or	4.21 gr.	arsenic.
" 2,	52.16	" "	3.86	"
" 3,	46.37	" "	3.43	"
" 4,	34.70	" "	2.57	"
" 5,	27.84	" "	2.06	"
" 6,	5.89	arsenite. "	2.35	"
" 7,	4.32	" "	1.75	"
" 8,	2.96	" "	1.18	"
" 9,	2.59	" "	1.04	"
" 10,	1.63	" "	.731	"
" 11,	1.04	" "	.417	"
" 12,	.814 gr.	" "	.326	"

Amounts of "Paris Green" in Green Tarlatans. One yard of each sample.

No. 1,	149.87 gr.	aceto-arsenite of cop'r or	11.09 gr.	arsenic.
" 2,	136.49	" "	10.10	"
" 3,	125.93	" "	9.32	"
" 4,	123.79	" "	9.16	"
" 5,	117.57	" "	7.70	"
" 6,	115.009	" "	8.51	"

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A HOMŒOPATHIC journal; very good so far as it goes, but two dollars for forty-eight quarto pages of matter is rather an "expensive whistle," at present prices of medical literature.

THIRTY-FOURTH ANNUAL REPORT of the Managers of the State Lunatic Asylum, Utica, N. Y., for the year 1876.

THE total number of inmates was 1,071, and, notwithstanding the unfavorable character of a large proportion of the cases admitted, 33 per cent. of these cases, and 50 per cent. of all cases in which a reasonable hope of recovery could be entertained, were discharged cured.

MARYLAND MEDICAL JOURNAL. Baltimore. Editors: H. E. T. Manning, M.D., T. A. Ashby, M.D. Published monthly by Manning & Ashby, proprietors. $3.00 per annum in advance. 8vo, pp. 58.

A NUMBER of medical journals have, within a few years past, had their origin in Baltimore, but have failed to succeed as commercial ventures. The present one, of which we have received already four numbers, deserves a better fate, if quality of matter and elegant appearance count for anything, and we extend to it a cordial welcome.

THE MEDICAL REGISTER OF NEW YORK, NEW JERSEY, AND CONNECTICUT. For the year commencing June 1, 1877. A. E. M. Purdy, editor. Vol. XV. New York: G. P. Putnam's Sons.

THIS handy book reached us too late for notice in our July number, having been some time overdue. The delay is attributed by the editor to the want of promptness on the part of physicians in supplying the information it contains, and is not to be wondered at when the amount and variety of matter furnished is considered.

The present volume is rather more compact than its predecessor, and has several valuable improvements. The list of names of physicians practising in New York city and Brooklyn is in clearer type, and the membership in local societies is mentioned after the name of each individual. The obituary notices of those deceased during the preceding year continue to form one of the most valuable parts of the work.

ANALYSIS OF SEVEN HUNDRED AND SEVENTY-FOUR CASES OF SKIN DISEASE Treated at the Demilt Dispensary, during the Year 1876, with Cases and Remarks on Treatment, by L. DUNCAN BULKLEY, A.M., M.D. (Reprint from *N. Y. Medical Journal.*) New York. D. Appleton & Co. 1877. 8vo, pp. 48.

THE care with which the cases reported by Dr. Bulkley have been observed and recorded make them very valuable additions to clinical medicine.

TRANSACTIONS of the 79th Annual Session of the Medical and Chirurgical Faculty of Maryland, held at Baltimore, April, 1877.

CONTAINS some very interesting papers, an extract from one of which (by S. Weir Mitchell) we give on page 229. The *President-elect* is Abram B. Arnold, M.D.; *Secretary*, Wilson G. Regester, M.D., both of Baltimore.

METRIC SYSTEM OF WEIGHTS AND MEASURES. Specially arranged for the convenience of physicians and druggists.

A CONVENIENT card 9x13 inches, issued by Hance Brothers & White, and embracing condensed tables of measures of length, weight, capacity, and surface, with their equivalents in measurements in common use in the United States.

HINTS FOR HOSPITAL NURSES. Arranged by RACHEL WILLIAMS, of St. Mary's Hospital, London, late of the Edinburgh Royal Infirmary: and ALICE FISHER, of the Fever Hospital, Newcastle-on-Tyne. Edinburgh, Maclachlan & Stewart, 1877. 16mo, pp. 174.

[A very complete and useful little work, in which the attempt is made to give instruction in regard to a multitude of the little details which make up the knowledge of a skilful nurse. The success with which it is accomplished, as well as the modest way in which it is done, deserve the warmest commendation.

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TRADE NOTES.

Filter-Presses.

Messrs. Wegelin & Huebner, of Halle, on Saale, Germany, are the manufacturers of exceedingly compact and serviceable hydraulic filter-presses for a variety of purposes.

Fig. 1 represents a filter-press of iron with central admission of the water-pressure. These presses are especially suitable for the separation of precipitates of a neutral nature from liquids, as well as for the use of color, glycerine, stearin, paraffin, starch, yeast, and dextrin manufacturers. For the clarification of juices they are extremely useful. In case it it is desired to wash the pressed substance within the chambers of the press, this may be done by means of a special washing apparatus connected with the press. The material to be filtered is placed into suitable filter-bags and these are introduced between the filtering disks.

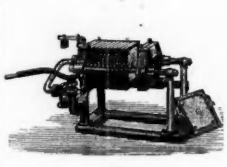

Fig. 1.

Fig. 2.

Another form of filter-press is shown in Fig. 2. This is constructed of wood with tubular feed from above, and is particularly adapted for the separation of heavy precipitates, such as white lead, barytes, etc. They are constructed in such a manner as to allow the easy removal of the filter-cloths, and the sediment thereon, from the filter-chambers.

Both of the above presses are made of various sizes, having filtering areas of from 2.5 to 20 square metres, and capable of furnishing in ten working hours from 300 to 2,000 kilos of pressed precipitates.

The same firm also makes a smaller filter-press, Fig. 3,

intended especially for chemists, pharmacists, and for experimental purposes. These presses are provided with a heating attachment, which allows the press to be heated by means of steam, in case the liquids are desired to be filtered hot. When the liquids containing the precipitates are of a volatile nature, the firm furnishes presses constructed in

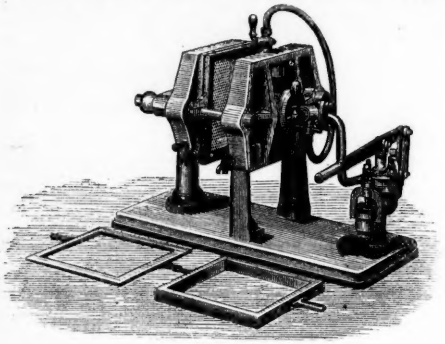

FIG. 3.

such a manner that the filtrate is not exposed to the air, and no evaporation takes place. There is a washing attachment connected with the press by means of which the pressed substances can be completely washed while still in the filter-chamber. The price of this filter-press with pump, in brass, is, at the factory, 450 marks (about $117); in iron, 300 marks (about $78). The price of three sets of assorted filtering cloths is 11 marks ($2.86).

Pinaud's Patent Hair-Brush.

PINAUD'S patent hair-brush, for the application of hair-dyes and hair-tonics, is made with a metallic tube inserted through the handle, opening into a square chamber or receptacle in the centre of the brush. A small bulb is first filled with the dye or preparation to be used, then inserted in the handle, as shown in the illustration, when, by a slight pressure of the hand on the bulb, the fluid passes through the tube into the centre of the brush, and then through small apertures down on to the bristles, which distribute it very uniformly over the head. Each brush is securely packed in a box, which also contains a small glass dish of sufficient capacity to hold the dye or tonic for each application. The brush is said to be used very extensively in Europe, and for neatness and simplicity far excels anything before produced. Price, $24 per dozen. McKesson & Robbins are wholesale agents for the United States.

Planten's Capsules.

THE increasing attention which is being paid to the exhibition of medicine in agreeable forms brings into prominent notice the merits of capsules made of jujube and gelatine. H. Planten & Sons, of 224 William St., in this city, are well known as being among the most prominent and reliable manufacturers of these wares. They offer five sizes of jujube-paste (empty) capsules: Nos. 0 (the largest) and 1, 2, 3, and 4 (the smallest), and a large line of gelatine capsules, charged with balsams, oils, vermicides, chloroform, etc., of which lists and prices will be furnished on application. This house gives particular attention to putting up special receipts in capsule form.

A Respiratory Brace.

DR. GEORGE F. FRENCH, of Portland, Me., is the inventor and patentee of an appliance which might well be added to the list of sundries to be found in an apothecary's establishment.

FIG. 1.

Many persons suffering from certain affections of the heart and air-passages, which renders breathing difficult at times, are obliged to fix the shoulders by leaning forward and resting the hands on the bed or knees. This affords the respiratory muscles a firmer point from which to act, and renders their action less tiresome. This posture interferes with sleeping, and the consequent loss of rest is one of the most distressing accompaniments of the diseases referred to. The adjoining cuts show how the brace of Dr. French can be used to fix the shoulders without requiring the patient to remain awake.

FIG. 2.

A cross-bar has loops of elastic webbing depending from its ends, which can either be slipped under the arm-pits, or, in case the weight of the upper part of the body is sufficient to cause pressure enough to interfere with the circulation, they may be passed under the points of the elbows, as seen in figure 2. A band of webbing, made to encircle the head, is connected by guys with the vertical strips, and completes the means for placing the muscles supporting the upper part of the body entirely at rest.

We are informed that the brace is meeting with a great deal of favor among travellers on the railroads. The relief which it affords from the jar of a car is said to be greater than can be obtained in sleeping coaches, and the rest is quite as refreshing.

The Iron-Clad Shipping-Can.

THIS can, made by Wilson & Blye, is adapted to protect an ordinary oil-can from injuries in transit, and after serving this purpose can be employed for a multitude of uses, such as serving as a receptacle for slops, ashes, coal, fuel, &c. It is made in sizes to fit cans holding one, two, three, five, and ten gallons, and ranges in price from forty-five cents to $1.65.

True Mitcham Lavender.

THIS delicate perfume, distilled from the flowers of the famous Mitcham Gardens in England, is for sale by Theo. Ricksecker, 146 William Street, at $7.50 per dozen. Aside from its value as a perfume, it is recommended for its medicinal properties in disturbances of digestion, inflamed eyes, and skin eruptions.

Warner's Pills and Granules in Egypt.—Messrs. W. R. Warner & Co., of Philadelphia, have received from Dr. Edward Warren, late Surgeon-in-Chief of the Egyptian Army, a letter thanking them for their donation to the Egyptian Government of their entire Vienna exhibit of sugar-coated pills and granules, which he declares gave great satisfaction.

ANALYSES OF PHARMACEUTICAL CHEMICALS AND PREPARATIONS.

We are now prepared to send samples for the October prize to such as may desire to compete for it. Answers must be received before the 20th of September, and be accompanied by a sealed envelope containing the name of the writer, and designated by a device or motto, which is also to be placed, instead of the writer's name, upon the report of the analysis.

Persons to whom a prize has been awarded are requested to send to the publishers the title of any book or books they may desire, not exceeding in the aggregate the value of $10.00.

None of the analyses sent in competition for the second prize were correct.

THE second sample sent for analysis contained potassium bitartrate ("cream tartar"), seventy per cent.; ammonia alum, twenty-seven per cent.; calcium tartrate and calcium sulphate, two or three per cent.

This sample is approximately of the same composition as much of the "Grocers' Cream Tartar" now sold in the United States, and which, owing to its cheapness, enters into many of the lower grades of baking-powders.

It was to teach the best methods of determining the purity of these two articles of daily use that this sample was sent; and, although none of the contestants have given a correct analysis, their work will not have been valueless if it shall point out clearly the difficulties liable to confront them in determining the purity of cream tartar or baking-powder.

It may be well to review the methods of analysis, both of contestants and my own, and see where and how we may be led to suspect and prove the presence of the various ingredients.

The following is a condensed statement of processes and results:

1. *Physical properties.*

A white powder, not very heavy, feels "gritty" to fingers, has an acid, astringent taste. Under the microscope the substance is seen to be of a crystalline nature, but none of the crystals are very perfect. Mixed with them are larger fragments of another kind of crystals. On the slide of the microscope about half of the mixture dissolves in cold water; the remainder dissolves by adding a drop of hydrochloric acid.

2. *Preliminary tests.*

(*a*) Heated on charcoal with blowpipe flame, the substance fuses, decrepitates, and leaves a solid, white, infusible mass. This mass, moistened with a solution of cobalt nitrate and again ignited, assumes a blue tint—indication of silica or *alumina.*

(*b*) Heated in glass tube closed at one end, fuses, gives off much water, which condenses in the cool part of the tube. By continued heating, ammonia gas is given off. This shows the presence of some salt of the alkaline earths (Ba, Sr, Ca), or of the fixed alkalies (K, Na), *which by heating would change to carbonate or oxide.* Tartrates or acetates might be expected, but the absence of acetic vapors would rather point to tartrates. Bitartrate of potassium, heated, changes to carbonate of potassium, carbonic acid gas, and carbon.*

(*c*) Heated on platinum wire in the blowpipe flame, the violet color of potassium compounds was observed; this color was not obscured by blue glass.

3. *Solubilities, etc.*

Boiled a small portion in a moderate amount of water; about half was dissolved. Increased the amount of water and again boiled; only a very slight residue. Filtered hot, and washed this residue.

The water solution, on cooling, deposited needle-shaped crystals, showing a sparingly soluble salt. The water solution had an acid reaction.

4. *Results of preliminary examination.*

(*a*) From physical properties we conclude that there are at least two different salts in the mixture. From the taste we are led to suspect *alum* for one salt.

(*b*) Decrepitation points to the presence of water. Fusion, if easily accomplished, generally points to salts of the alkalies. An infusible residue of a white color points to alumina, barium, strontium, calcium, or magnesium. The blue tint with cobalt nitrate gives evidence confirming our suspicion of *alum.* The water observed after heating in a closed tube gives evidence of a crystalline salt containing water of crystallization. The abundance of the water gives additional encouragement to our suspicion of *alum.* The ammonia given off on heating for some time points to *ammonia alum.* The fact that ammonia was not at first given off points to some organic acid; acetic or tartaric are quite common as potash salts. The flame reaction shows potassium.

We are then sure of the presence of potassium, ammonium, and water, and suspect sulphuric acid as present in the alum, and tartaric acid as combined with potassium. The solubility of the salt in dilute acids excludes anything but *traces* of calcium sulphate.

Now, employing water, we remove by filtration any insoluble matter. This water solution is traced through the "groups," the result being that in the "third group" we find aluminium and a very faint trace of iron, in the "fourth group" a very slight trace of calcium, and in the "fifth group" a trace of potassium. A portion of the original water solution heated with potassium hydrate gives evidence of ammonia. This water solution shows much sulphuric acid, but only traces of acids precipitated by silver nitrate.

We have proven the presence of *ammonia alum* in the water solution.

The residue which remained insoluble in water gave such a bright potassium flame that we must conclude that it is an insoluble salt of potassium. By reference to text-books we find that the only white salt likely to be present is potassium bitartrate. By further reading we find that potassium bitartrate nearly always contains about five per cent. of calcium tartrate, and sometimes a trace of calcium sulphate. We easily dissolve the salt by dilute hydrochloric acid, and prove the presence of calcium, potassium, and a trace of sulphuric acid. To prove tartaric acid is rather more difficult, and so we take a new and larger portion of the original substance.

Take fifty grains of the powder, boil with water, and add solution of sodium carbonate. Continue the heat a few minutes, then filter out the aluminium hydrate and calcium carbonate. The filtrate contains potassium—sodium tartrate (Rochelle salt), and sodium sulphate. From this solution the tartaric acid may be extracted by adding about five drops of sulphuric acid with alcohol sufficient to precipitate the sulphates of potassium and sodium. Filter, and to the filtrate add potassium hydrate, and acetic acid in excess. A white crystalline precipitate of potassium bitartrate will occur. The solution of tartaric acid should be quite concentrated to get the best results. Other tests, which are given in nearly all text-books, may be employed to confirm the presence of tartaric acid.

* Bloxam's Chemistry, p. 292.

Now, to test cream tartar is an easy matter. Merely boil it with solution of sodium carbonate. It ought all to dissolve, except a very slight residue of calcium carbonate, five per cent. of *calcium tartrate* being allowed by U. S. P. If any alum is present, it will immediately be detected by the odor of ammonia, and by a precipitate of aluminium hydrate.

The next sample for analysis is found among the preparations of the U. S. P. It is not adulterated, but contains small amounts of substances liable to be present from carelessness in manufacture. It will require careful work, but is, on the whole, easier than the sample just sent.

ANSWERS TO STUDENTS.

"SPERO," "MARANTA," AND "GYPSUM."—In testing for calcium with ammonium oxalate, you were led to suspect the presence of much calcium because of the *great delicacy* of the test. A watery solution of calcium sulphate contains about one part in five hundred, yet this gives quite a heavy precipitate with solution of ammonium oxalate. You found much sulphuric acid in the insoluble residue because it was imperfectly washed.

"J. S."—Attfield's Chemistry is one of the best, and for analysis either Douglas & Prescott's Qualitative Analysis, or Fresenius' Qualitative Analysis. Fresenius' is in the old notation, the others in the new. They may be procured of William Wood & Co. Your question is answered in July article, I think.

"ELIXIR."—Potassium iodide would precipitate salts of silver, mercury, and bismuth, if present, as well as lead. The best plan is to precipitate in acid solution with hydrosulphuric acid gas, dissolve the lead sulphide in hot dilute nitric acid, and precipitate the solution by dilute sulphuric acid and alcohol.

"JUNIOR."—Your best way is to write to the president or secretary of either of the colleges named. They will send you all the information desired. Both schools are good. Attfield's Chemistry, seventh edition, is worth in cloth, $2.75; in sheep, $3.25.

Candidates are requested to write on one side of their paper only, and to take separate sheets for other communications.

NOTES, QUERIES AND ANSWERS.

[*Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue.*]

Dyeing and Printing. (Ed. R., Staten Island).—There are a large number of works treating on these subjects. For your especial purpose, however, we would particularly mention the following, which is exceptionally complete:

Schützenberger, P., Die Farbstoffe, mit besonderer Berücksichtigung ihrer Anwendung in der Färberei und Druckerei. 2 vols., with illustr. and printed musters. 8vo. Berlin, 1870. M. 20.00.

Detection of Fuchsine in Wine. (S. McA., Cincinnati).—Among the many methods proposed to detect fuchsine in red wines, that of Pasteur and Wurtz is probably the simplest. 4–5 c.c. of the suspected wine are made alkaline with solution of caustic baryta, the liquid is filtered, the filtrate acidified with acetic acid, whereby rosaniline (which had lost its color through the presence of baryta) is converted into rose-red acetate of rosaniline, and the liquid is shaken with amylic alcohol (pure fusel oil). The least trace of fuchsine (limit 0.0025 gm. per litre) is recognized by the tint imparted to the layer of amylic alcohol.

To preserve Fruits (F. E. Y., Troupe, Texas).—Specimens of fruits may be preserved in various ways. Presuming that you intend to keep them in their natural condition, without immersing them into liquids, you may *try* Chevet's method, which consists in placing the fruits into a suitable vessel in tiers, so that they do not touch each other, and filling the interstices between the fruits and between the different layers with sifted fresh slaked lime. Our experience, however, does not enable us to speak of this method with confidence. Another method, which appears to be as perfect as can be desired, and only rarely alters the natural colors, has been indicated on page 267 of our last volume. It consists in placing *sound* fruit, which had best be arranged in layers, without touching each other, into glass jars, or other suitable vessels, and introducing into the jar a small quantity of carbon disulphide, about 1 3 for every half-pound of fruit. The jar is then to be hermetically closed, and kept in the dark. On opening the jar, the fruit is to be aired for a short time, so as to remove the acquired odor. Salicylic acid does not destroy vegetable colors; indeed, it appears to preserve them, and it has been successfully used for retaining the natural colors of dried plants. See NEW REM., v., 327.

Alcohol in Oil of Lemons. (G. H. Ph., Unadilla, N. Y.).—Various processes have been recommended for detecting alcohol in essential oils. Some of these (by means of potassium, shaking with water, etc.) you will find in the U. S. Dispensatory, under the heading Olea Volatilia. More recent is the method of Stefanelli (NEW REM., v., 10), lately revived by H. Draper, to employ certain aniline colors. Methyl-aniline salts (Hoffman's Violet), or acetate or muriate of rosaniline (Fuchsine, Magenta), are found to be perfectly insoluble in most essential oils, when free from moisture (except perhaps oil of peppermint, caraway, rose, and almonds); but the presence of a small quantity of alcohol immediately caused a more or less deep coloration of the oil.

Elixir of Gentian and Tr. Ferri Chlor. (G. F. R., Beverly, Mass.)—Gentian does not contain tannin; hence, iron-salts do not produce a dark coloration. Try this formula:

Extract of gentian	256 grs.
Water, hot	1 fl. oz.
Simple elixir	14 fl. oz.
Tr. ferri chlor. (tasteless)	1 fl. oz.

Dissolve the extract in the water, add the elixir, and finally the tincture.

Formulæ for Elixirs. (H. J., Lyons, Mich.)—There is no special work published on elixirs and effervescent salts. By consulting the pharmaceutical journals of the last few years, you will find a host of formulæ. We have ourselves published a number in our last year's volume, and on page 62 of our last February number. In future we shall give others, as occasion may call for.

Emplastrum Manus Dei. (E. L., Baltimore.)—This plaster, which may be translated as "God's Hand Plaster," has been officinal in the Danish Pharmacopœia, and is prepared as follows: Compound lead plaster 190, cerate of verdigris 10 parts; melt gently. Or else as follows: Lead plaster (simple) 180 parts; melt and add verdigris 5 parts; heat until the mass has changed from a red to a blackish color, then add white wax 40; galbanum, ammoniacum, olibanum, of each, in powder, 5; powdered mastic and myrrh, of each 1.25 parts. Form the plaster, while soft, into rolls.

Grahe's Test for Alkaloids in Cinchona Barks. (W. P. S., Louisville, Ky.)—Grahe, of Kasan (Russia), has found that any cinchona alkaloid, or any bark containing one or more of them, when heated in a glass tube in the presence of a volatile acid, or of substances capable of producing a volatile acid, evolves heavy vapors of a beautiful crimson color. Even the smallest fragment of a cinchona bark, *provided it contains alkaloids*, affords these vapors. On the other hand, the reaction fails with all other barks, and even with cinchona bark destitute of alkaloid.

Alum and Lead Acetate. (J. O. H., Gibson City, Ill.)—This correspondent says: "Having occasion to mix powdered alum and powdered sugar of lead for an ointment, in triturating both the salts together in a *dry* mortar a very *soft* mass was formed. What is the cause of this?"—Alum is a double sulphate of aluminium and potassium (or ammonium). In a crystalline state it contains a large quantity of water of crystallization, and this water is of course also retained in powdered alum. Ammonia alum ($AlNH_4(SO_4)_2,12H_2O=454.3$) contains 47.63 per cent. of water of crystallization or constitution, which forms an intrinsic part of the compound, and is not visible as water. Now, on bringing a substance like lead acetate, or barium chloride, etc., which has a great affinity for the sulphuric acid, in contact with the alum, an interchange of elements takes place: the acetic radical of the lead salt unites with the ammonium and aluminium of the alum, and the sulphuric radical of the latter unites with the lead. The new salts formed, however—namely, lead sulphate and the acetates of ammonium and aluminium—are incapable of binding the water, originally present, in a solid molecule; in other words, there is more water present than is required to enable the new compounds to crystallize. Hence, the mass is liquid.

Patchouly. (O. W., Rochester, N. Y.)—Patchouly leaves, from *Pogostemon Patchouli*, nat. ord. Labiatæ, may be obtained from any wholesale drug house, at about $0.90–1.00 per pound.

Pharmaceutical Dictionary. (J. S. R., Ont.)—The German-English part of *Rudolphy's Chemical and Pharmaceutical Dictionary*, 8vo, Chicago, 1877, $5.00, will answer your purpose best.

Colorless Tincture of Iodine (F. F. Y., Independence, Kans.)—Any preparation of iodine, which does not exhibit the peculiar *color* of iodine of a greater or lesser depth, does not contain it in a free state. A solution of iodine in alcohol, or in water, best with a trace of an iodide, shows a characteristic color; as soon as this color has been destroyed by any means whatever, the iodine has entered some combination. We do not, however, mean to say, that such decolorized solutions are inert. Curtmann's Formula for preparing it is: Iodine, 10 drachms; alcohol, 13 fl. oz.; stronger water of ammonia, 3 fl. oz. The solution then contains: ammonium iodide (and perhaps iodate), ethyl iodide, and an ethylammonium iodide. In place of the ammonia, a sufficient quantity of a solution of sodium hyposulphite may be used. Darling has shown that iodoform is one of the products of the first-mentioned formula.

Ceresin and Ozokerite (B. &. M., N. Y.)—You may obtain these, either in bulk or manufactured, from Messrs. H. K. & F. B. Thurber & Co., Reade St. and West Broadway, N. Y., or from the Allan Hay Co., 1179 Broadway, N. Y.

Magenta (W. J. W.)—We have failed to find any foreign admixtures in the sample of magenta you sent us, and we cannot imagine what led you to think that it was impure. Perhaps you are not aware that the products of various aniline factories differ slightly in their degree of solubility; this is probably owing to slight variations in the original starting-point, as well as to different methods of manufacture. The *pure* aniline salts, of course, are identical in properties, no matter where prepared. The commercial salts need not be *pure;* as long as they have not been tampered with, and have the proper tint and solubility, they may be considered satisfactory.

W. C. R. (Mt. Carmel, Ill.), and **Country Chemist** (Kenosha, Wis.)—Your queries are under consideration.

Limousin and Lebaigue some years ago proposed that all colorless poisonous substances should be artificially colored by fuchsine, to prevent accidents. This would certainly be an excellent way of preventing such poisons as arsenious acid ("white arsenic") to be mistaken for harmless powders, as has happened quite frequently of late.

NEW PATENTS AND LAWS.

[We will furnish gratis, to subscribers, any information relating to new patents which can be obtained from the Official Gazette of the Patent Office; and for 50c. will give copies of the drawings of such as are illustrated. Electrotypes of the illustrations contained in NEW REMEDIES *will be furnished for 50c. per square inch.*

TRADE-MARKS REGISTERED IN U. S. PATENT OFFICE.

June 5th.

Medicines and Chemicals.

4,697. Pennsylvania Salt Manufacturing Co., Philadelphia, Pa. "Saponifier."

4,701. Smith, Klein & Co., Philadelphia, Pa. "Magnetic."

4,706. Edward Heaton, New Haven, Conn. A border representing infants' and children's heads (Infant's food).

4,707. Edward Heaton, New Haven, Conn. A central coat-of-arms, showing an American shield in the centre, a blazoned crescent above, and the whole surmounted by a crown enclosed by a wreath (Ibid).

Soap.

4,694. Bowen & Cunningham, Leavenworth, Kans. "Water Queen."

June 12th.

Medicines and Toilet Preparations.

4,714. Dundas Dick, New York, N. Y. "Docuta."

4,715. Helen F. Fairbrother, New Bedford, Mass. "Ongentine."

4,719. John B. Marchisi, Utica, N. Y. The figure of a woman, as described, and fac simile of signature of John B. Marchisi.

4,728. Dundas Dick, New York, N. Y. The fac simile signature of Dundas Dick & Co. upon the monumental background described and shown, the oval containing a coat-of-arms, and the label arranged in five compartments, as shown, the whole being used in connection with the words Dundas Dick & Co.'s Machinery-Improved Capsules.

4,729. Earl & Gamage, Boston, Mass. The figure or outline of a linear representation of a star, with the points of a star alternately overlapping and underlapping a linear representation of a hexagonal band.

4,730. C. Edmond Fougera, Brooklyn, N. Y. "Eau Angelique,"

4,732. Charles Lediard, New York, N. Y. The word-symbol "Zulu," used in connection with the word "water," both words printed in white upon a black ground, and contained in an ornamental scroll or band, as shown.

4,738. Rebecca F. Payne, Philadelphia, Pa. "An engraved figure representing the head and face of a duchess, with head-dress indicating the insignia of the position of such a personage, printed on my labels immediately underneath the word-symbol 'Duchesse,' and above the words 'Centennial Cream.'"

Paints.

4,720. Southern White Lead Company, St. Louis, Mo. "Southern Company."

4,721. J. W. Walker, Bros. & Co., Cincinnati, Ohio. "The words J. W. Walker, Brothers & Co., and the figure or symbol of a diamond enclosing a series of oblique and vertical bands, and the small superposed diamond.

June 19th.

4,757. Lafe Graff, New York, N. Y. "The representation of a clock-dial." [Soap-making preparation].

June 26th.

Medicinal Preparations.

4,759. Gardner F. Badger, East Orange, N. J. The word-symbol, "Vigorine."

4,774. Loren B. Lord, Burlington, Vt. The fac-simile of the autograph of Henry Baxter, M.D., on one side of and in connection with a label, which is enclosed within an ornamental border, and containing a shield formed by four braces, upon which rests the representation of an eagle with extended wings.

4,775. Charles R. Martin, Sulphur, Ky. The representation of a hog and my monogram, C. R. M. [Hog-cholera remedy.]

4,784. James S. Talbot, Boston, Mass. The fanciful words, "Our Dumb Animals' Friend."

4,785. Crooks & Hatcher, Zanesville, Ohio. The word "Embalsamar."

4,771. James K. Ish, Omaha, Neb. The symbol of the eagle and mortar, and the word "Golden" used in connection with the word "Ginger."

Soaps and Chemicals.

4,777. Monteath & Co., Albany, N. Y. The word-symbol "Empress" used in connection with the word "Soap."

4,788. Holme & Fuller, Hartford, Conn. The word-symbol "Charter Oak." [Soap.]

4,971. John M. Jones, Jersey City, N. J. A shield divided by one perpendicular line through the centre, with two chamois (one on each side of said perpendicular line) standing erect on one hind foot, as if in the act of leaping, etc.

4,792. Lake Guano and Shell Fertilizer Co., New York, N. Y. Pictorial representation of a conch-shell with a cluster of fruits and plants, indicative of the products of the United States, issuing therefrom.

4,793. Rumford Chemical Works, Providence, R. I. The word-symbol "Horsford."

PATENTS.

June 5th.

Bottle-stoppers, C. de Quillefeldt (re-issue)	7,722
Hydrocarbons from substances which have been treated therewith, extracting, W. Adamson	191,633
Lubricator, C. H. Parshall	191,707
Medicine Case, J. C. Millard	191,607
Mineral-wool, process and apparatus for treating, A. D. Elbers	191,524
Oil-can, D. Bennett	191,642
Preserving, drying, and bleaching fruit, composition for, J. R. Dodge, Jr	191,661
Pumping fluids from casks, etc., apparatus for, W. F. Class	191,656
Quicksilver condenser, R. F. Knox	191,687
Sugar in centrifugal machines, apparatus for liquefying hard, O. H. Krause	191,535
Sugar, washing raw, F. O. Matthieson	191,539
Ventilation and disinfection of buildings, W. H. Bennett	191,512

June 12th.

Animal matter, treating and drying, W. C. Marshall (re-issue)	7,742
Carbon in retorts, preventing the accumulation of, W. Karr (re-issue)	7,739
Carbonic acid gas generator, O. Zwitusch	191,912
Druggists' prescription file, C. G. Stromberg	191,783
Eye-glass, G. Johnston	191,972
Eye-glass holder. S. F. Merritt (re-issue)	7,743
Gas, manufacturing carburetted hydrogen, J. H. Bowman	191,749
Heating and ventilating buildings, W. F. Flagg	191,952
Hydrocarbon oils, process and apparatus for the manufacture of deodorized heavy, J. Merrill (re-issue)	7,733
Insect-powder, blower for, W. F. Brammer	191,795
Liquid measure, W. K. Johnston	191,971
Lubricator, A. S. Skinner	192,025
Mercury condenser, Long & Castle	191,805
Mucilage holder, J. V. Browne	191,751
Sugar-purging apparatus, automatic, C. Plagge	192,004
Sulphurous anhydride, manufacturing, R. P. Pictet	191,778
Surgical tube, india-rubber, E. Pfarre	191,879
Syringe, J. S. Parsons	191,775
Thermometer, F. Stohlmann	191,897
Vapor bath, G. W. Walker	191,905

June 19th.

Bathing apparatus, W. J. Hill	192,164
Bottle-stopper, H. N. Gale	192,262
Demijohn case, C. Newman	192,182
Dental plates, teeth, etc., manufacture of porcelain adapted for, A. B. Cady	192,149
Exercising machine, J. McLaughlin	192,271
Filter, H. W. Watson	192,103
Filter, self-cleaning, H. W. Watson	192,313
Lubricator, S. Rushworth	192,193
Paints, etc., composition vehicle for, H. C. Crowell,	192,056
Scale-pan, E. M. Whyler	192,207
Shoulder-brace, A. Adamson	192,106
Spectacle frame, W. H. Peckham	192,125
Truss, J. R. Alexander	192,141

June 26th.

Blow-pipes, Daniel R. Porter	192,452
Chest-protecting garment, C. A. Fuller	192,366
Copper and precious metals from copper mat, separating, W. B. Young	192,401
Crucibles, compound for the manufacture of, H. Wile	192,398
Crucibles, manufacture of, Park & Hay	192,345
Door and drawer plate, F. H. Seymour	192,533
Evaporating-pan, G. T. Jones	192,376
Exercising machine, W. M. Marshall	192,338
Funnels, measures, etc., stand for holding, S. M. Preston	192,348
Inhaler, J. B. de Guise	191,488
Oil-can, J. F. Coppel	192,486
Vanilline, manufacture of, F. Tiemann	192,542

TRADE MARKS.

June 5th.

1,080. "Dr. Church's Vegetable Liver Pills." W. C. & G. C. Fisher, Patoka, Ind.

1,081. "Imperial Granum." Edward Heaton, New Haven, Conn.

1,082. "Imperial Granum." Edward Heaton, New Haven, Conn.

1,083. "Ingram's Great Radical Rheumatic Remedy." John Ingram, St. Louis, Mo.

1,084. "Yalobusha Tonic." M. H. Sharpe, Cofferville, Miss.

June 12th.

1,085. "Malt Monseaux." Magnus Frank, New York, N. Y.

1,087. "Lewis' Hemorrhage Cure." Phebe L. D. Thomson, Chicago, Ill.

June 19th.

1,089. "Holman's Ague and Liver Pad." Holman Liver Pad Company, New York, N. Y.

1,090. "Holman's Fever, Ague, and Liver Pad." Holman Liver Pad Company, New York, N. Y.

June 26th.

1,099. "Potato-Pest Poison." The Lodi Chemical Works, Lodi, N. J.

1,101. "Elixir Theobroma Comp." C. B. Woodworth & Son, Rochester, N. Y.

PRESCRIPTIONS AND FORMULÆ.

Standard Formulæ for Certain New Preparations.

(Continued from page 222.)

43. *Narceina* ($C_{23}H_{29}NO_9 = 463$).

To the mother-water left after the crystallization of morphia and codeia from opium liquors (Gregory's process), ammonia is added, which causes a precipitate of narcotine, thebaine, and a resinous matter; to the filtered liquid a solution of lead acetate is added, whereby a new precipitate is produced. After filtration an excess of sulphuric acid is added to remove the lead from the filtrate; the latter is neutralized with ammonia and is cautiously evaporated until a pellicle forms. On cooling, a crystalline deposit forms which augments by standing. This, when thrown on a strainer, washed with cold water, and then boiled with a sufficient quantity of water to dissolve it, furnishes, on cooling, silky crystals of narceina. These crystals are again dissolved, decolorized by animal charcoal, and recrystallized. Finally they are treated with ether, to separate any accompanying meconine.

Narceina appears thus in form of fine prismatic needles, slightly soluble in cold water or alcohol; more soluble in boiling water, and very soluble in boiling alcohol, and almost entirely insoluble in pure ether. It fuses at 145° C. It does *not* reduce iodic acid, and is not colored blue by ferric salts. A solution of iodine, 2 parts in 1,000, strikes a fine blue color with it.

44. *Syrup of Narceina.*

Water, containing 6 gm. per litre of HCl, spec. grav. 1.16	100 gm.
Narceine	1 "
Water	250 "
Sugar	650 "

Dissolve the narceina in the acidulated water with heat, add the other water and the sugar so as to form a syrup which contains 10 centigrammes (0.10 gm.) of the alkaloid in 100 grammes, or 2 centigrammes (0.02 gm.) in a tablespoonful (20 gm.), or 5 milligrammes (0.005 gm.) in a teaspoonful (5 gm.).

45. *Pancreatin.*

Pancreatic glands, freed from all extraneous matters, are to be macerated in double their weight of water, previously saturated with chloroform to arrest decomposition. After some time the mass is thrown on a strainer, the residue expressed and the resulting liquids mixed. These are rapidly evaporated in a current of air in large shallow dishes at a temperature not exceeding 45° C. (113° F.).

Ten centigrammes (0.10 gm.) of pancreatin, added to 5 gm. of fibrin in 25 gm. of water, and heated at 50° C. (122° F.) dissolve and transform it completely. The filtered solution should at most only show a faint cloudiness on adding nitric acid. 10 centigrammes (0.01 gm.) of pancreatin, added to 100 gm. of starch-paste (containing 5 gm. starch) give a liquid, which runs rapidly through a filter and is capable of reducing four times its volume of Fehling's standard solution (NEW REM., v., 93).

46. *Bibasic Nitrate of Mercury, or Turbith Nitrate.*

($Hg(NO_3)_2, Hg_2O + H_2O$.)

Crystallized neutral mercury nitrate	1 part.
Boiling water	10 parts.

Powder the crystals as fine as possible, and stir them into boiling water, with constant agitation. As soon as the powder has become greenish-yellow, let it deposit; decant the supernatant liquid, and wash the precipitate several times with cold water. Dry it and preserve it in the dark.

Turbith Nitrate is a pale greenish-yellow powder, insoluble in water, but entirely soluble in pure nitric acid. Potassa turns it black. On igniting it strongly, it emits reddish fumes, and vapor of mercury, leaving no residue.

47. *Mustard Paper.**

The preparation of paper sinapisms requires two indispensable conditions: 1. The employment of powdered mustard *entirely* deprived of all fatty matter. 2. The use of an adhesive liquid, which contains neither water nor alcohol, nor resin, nor fatty matters.

Powdered mustard is deprived of its fat or oil by means of carbon disulphide, or petroleum benzine. The adhesive liquid consists of a solution of 4 or 5 parts of caoutchouc in 100 parts of a mixture of carbon disulphide and petroleum benzine. By means of a plaster-spreading apparatus a uniform coat of this solution is applied to paper. As the latter passes out from under the apparatus, a sieve containing the powdered mustard is shaken over it, which latter is fixed by the adhesive coat and firmly retained after the evaporation of the volatile liquids in a warm place. The application of the powdered mustard must be properly regulated according to the speed with which the machine delivers the coated paper. [This is a very simple matter, when using the common small hand-machines.]

The paper is cut into pieces of convenient size, and needs only to be wetted to be ready for use.

Transparent Gout-Paper. (*Pharm. Zeit.*)

Tissue-paper is covered with a solution of 1 part of amber-lac and 6 parts of benzoin; when dry the following is applied: Euphorbium, 30 parts; cantharides, 15 parts; stronger alcohol, 300 parts; digest three days, filter, and add Venice turpentine, resin, and pitch, of each 15 parts. If necessary, this solution may be diluted with some more strong alcohol, and should be applied with a broad brush.

Another formula is: Cantharides 15, euphorbium 4, strong alcohol, 240 parts; digest a few days, filter, and add pitch 180; dissolve with a gentle heat, and add Venice turpentine 6 parts, and enough tar to color the mixture brown. This is spread two or three times upon tissue-paper by means of a sponge, and when dry, the back of the paper is coated with oil of lavender.

Mistura Guaiaci Viridis. (B. H.)

℞ Potassii iodidi	℥	iij.
Tr. guaiaci ammoniatæ	fl.	ijss.
Aquæ	fl.	iij.
Extracti fl. dulcamaræ, q. s. ad	fl.	viij.

Dissolve the iodide of potassium in the water, add the tincture in portions, and shake well together until a clear green mixture has been produced, with separation of most of the gum-resin. Then strain, and add the fluid extract. Dose, in gout or rheumatism, one to two teaspoonfuls.

Antiseptic Vinegar.—The following formula for antiseptic vinegar is given by M. Pennés:

Salicylic acid	300	grammes.
Acetate of alumina	300	"
Tincture of eucalyptus globulus	1,000	"
" verbena	900	"
" lavender	1,000	"
" benzoin	100	"
Acetic acid ("No. 8")	1,000	"

Mix thoroughly with the requisite precautions, shake frequently during two or three days, and filter.

This vinegar may be used either pure or diluted as a lotion.

Five litres injected into the carotid will preserve a cadaver several months. In the form of spray it is recommended as an admirable disinfectant for the sick-room.

Error in the British Pharmacopœia.—Notwithstanding the care with which this Pharmacopœia is revised at short intervals, an important mistake has lately been pointed out on page 180, in which, in the formula for liquor arsenicalis, five fluid *ounces* of compound tincture of lavender is directed to be used instead of five fluid drachms—the latter being the correct quantity.—*Med. Press and Circular.*

* See NEW REMEDIES, v., 330.

ITEMS.

American Pharmaceutical Association.—The twenty-fifth annual meeting will convene at the City Council Chamber, Toronto, Canada, on Tuesday afternoon, Sept. 4th, at 3 o'clock. Associations entitled to *delegations* will please use the credential blanks which are obtainable from the undersigned, and delegates will report promptly on the opening of the first session.

Goods intended for the *exhibition*, to be held at the same time, should be addressed to the Local Secretary, M. Henry Rose, who should be informed of the space required, by or before August 15th. He has kindly offered to exert himself in disposing of American goods to the best advantage. Goods from the United States will be admitted in bond, and may be reimported *free of duty*, if they are of the *growth, produce, or manufacture of the U. S.*, according to Sec. 2505, R. S. The regulations of the Treasury Department, Art. 374, facilitate the re-entry of such goods if brought back to the port of original exportation; E. S. Nichols, Esq., Dep. Collector at Suspension Bridge, writes that any person having charge of the goods may attend to the necessary formalities.

The *headquarters* at Toronto will be at the *Rossin House*.

The following *travelling arrangements* are proposed:

Via Watkins and Seneca Lake to Niagara Falls, and return by New York Central R.R. via Albany and Day Line steamers to New York. Round-trip tickets by steamers on Lake Ontario, between Suspension Bridge and Toronto, may be had at $2. Some members will extend their trip, returning via Clayton (Thousand Isles), and Trenton Falls; others via Montreal, Lake Champlain, and Lake George; and others by Montreal, the White Mountains, and Portland.

It is proposed to leave on Wednesday, Aug. 29th, Baltimore and Philadelphia at 7.20 A.M.; and Harrisburg at 10.50 P.M.; arriving at Watkins at 6.20 P.M. Members of the Western, Southern, and Middle States can make close connections and obtain round-trip tickets at the principal stations of the Pennsylvania R.R. and connecting lines. Members from New York and vicinity can meet the same train, or, by taking the Erie R. W., meet the other party at Elmira, or next morning at Watkins. Headquarters at Watkins will be at the *Glen Mountain House;* Thursday and Friday will be spent in visiting Watkins' Glen, Havana Glen, and Hector Falls.

Leave Watkins Saturday morning, arriving at Niagara the same evening. Headquarters: *Cataract House*. Tickets for several interesting places may be obtained at reduced rates at the store of our fellow-member, Hiram E. Griffith.

A special reduction of $5 on each ticket has been made from the points mentioned below for the trip, returning by way of Lake Champlain. Members and delegates may obtain tickets for themselves and families from S. Carpenter, 526 Broadway, *New York;* 11 South Broad St., *Philadelphia;* corner Baltimore and Calvert Sts., *Baltimore;* Pennsylvania Ave. and 6th St., *Washington, D. C.;* and Exchange Hotel, *Richmond, Va.*

A suitable reduction from regular charges has been obtained at the three hotels mentioned.

Toronto may be reached by 1.30 P.M. on Tuesday, in time for the first session.

Members living on the line of the Great Western or Grand Trunk Railway may obtain tickets to Toronto and back at one and one-third fare.

Reports, Papers, and *Applications* for membership, may be sent to the undersigned by August 25th.

JOHN M. MAISCH,
Permanent Secretary.

PHILADELPHIA, August 1, 1877.

The Tariff on Drugs and Chemicals.—The following circular has been received by us, accompanied by a list of the leading manufacturers of chemicals in the country. It expresses so clearly the views held by this class of the community on the question considered, that it will be a matter of general interest:

DEAR SIR—We (the Committee on Tariff Legislation, appointed by the Manufacturing Chemists' Association of the United States) do not desire, at this time, to enter into any discussion of Free Trade or Protection to Home Industries.

The object in addressing our fellow-citizens at present is simply to call attention to the fact that it has been proposed to place all chemicals and medicinal preparations on the free list, and yet continue protective duties on agricultural products and manufactured goods in general.

We claim that the manufacturing chemists have equal rights with all other citizens of this country. They have many millions of capital invested in business, give employment to large numbers of workingmen, and pay the same wages, the same rates of interest for the use of money, the same prices for silk, cotton, and woollen goods, iron and steel, cutlery, leather, salt, food, etc.; the same taxes, municipal, State, and Government, as others do.

If the tariff is to be for revenue only, regardless of protection, we must accept the change in policy, and expect to have many chemical products, made abroad, admitted here duty free.

If, on the other hand, the tariff is to be for protection as well as revenue, and if wheat, corn, oats, silks, cottons, woollens, salt, leather, sumac, cutlery, iron, and steel, grindstones, emery ore, coal, lumber, carriages, etc.—in fact, everything produced in this country—are to be protected by duties imposed on like products sent here from abroad, then we claim that chemicals and medicinal preparations are alike entitled to protection.

We desire, therefore, to distinctly define our position, and to call the attention of those engaged in agricultural pursuits, *who are protected*, and to manufacturers in the various branches of industry, *who are also protected*, to the manifest injustice of selecting chemicals only from among all manufactured goods for the free list.

If we are to have protection, ALL are entitled to it. If we are to have free trade, let it be in food, clothing, tools, machinery, etc., as well as in chemicals and medicinal preparations; and to this end we shall feel bound, in self-defence, to use our united influence.

We ask only for equal rights, and protest against having a policy applied to us (as was proposed at the last session of Congress) totally at variance with that designed for all others.

Respectfully,

ALEXANDER H. JONES,
ALBERT F. DAMON,
HENRY BOWER, } *Philadelphia.*
GEORGE M. OLCOTT, *New York.*
ALEXANDER COCHRANE, *Boston.*

Issued by order of the Manufacturing Chemists' Association.

THOMAS I. HARRISON,
President.

HENRY BOWER,
Recording Secretary.

The Michigan State Medical Society at its recent meeting adopted the following expression of its opinion:

Whereas, There is a bill before Congress to remove the tariff on quinine; and

Whereas, By the tariff a few men are enabled to get up a corner on quinine and increase the price of that drug; and

Whereas, Especially the poor and the sick suffer when quinine is very expensive, as the consumer must pay for the drug, whatever the price, there being no reliable substitute for this extensively used therapeutic agent;

Resolved, That it is the sense of the Michigan State Medical Society that the bill to remove the tariff on quinine, now before Congress, should pass that body.

Resolved, That the Secretary be instructed to send a copy of these resolutions to the Senators and Representatives in Congress from this State.

Opium Consumption in the United States.—The recent heavy importations of opium at this port have led to considerable comment, and various causes have been assigned. The following figures, showing the amounts imported during the present year, and its cost, were recently obtained at the custom-house and reported in the *Tribune:*

	Pounds.	
January	16,577	$80,761
February	5,100	26,196
March	7,304	34,951
April	1,800	9,000
May	29,576	125,291
June	50,000	275,000
Totals	110,357	$551,199

During the first week of July, 51 packages were received, averaging 150 pounds each, at a valuation of $42,075. Said a heavy dealer: "When the war between Russia and Turkey broke out, a great speculative fever raged here, and scores of men with unemployed capital invested heavily, based on a probable war-tax by Turkey, or a closing of the port at which most of the opium is shipped. The price was thus run up to $8 gold in bond, or $9 in currency; but the port of Smyrna being so remote from the seat of war, the market has since declined to $5.50 gold, and most of the outside speculators lost their all in six weeks' time. One man, a very clever fellow, invested his last dollar. I urged him to sell when the top price was reached, assuring him of a profit of $20,000; but he persisted in waiting for more, and is now a bankrupt."

Smyrna and the contiguous country in Turkey is the commercial source from which this country draws its chief supply. The present crop is reported as unusually large, with a probable yield of 9,000 chests, or 1,350,000 pounds, which is largely in excess of last year. The following is reported as the receipts for two years at New York and Boston: 1875, 1,776 cases; 1876, 1,259 cases. The receipts at Philadelphia are unknown, but are set down at 500 cases a year, mostly used by two large houses for the manufacture of morphia. The new crop is now being gathered, and may be decreased or entirely destroyed by a cold snap or heavy rains. The task of gathering this year falls upon women, children, and old men, all the able-bodied men being off to the wars. Opium is now as low as it has been for twelve years, only once in that period having declined below $5 gold, duty paid, when there were several large crops in succession. The consumption in this country is about 2,000 cases, or 300,000 pounds a year. Wholesale druggists and those who deal in opium as a specialty, ascribe the large increase in the amount consumed in part to the heavy manufactories which have sprung up within a few years for the making of the tinctures and morphia. At the same time, they admit that a much larger amount enters into personal use than heretofore. "Notably is this the fact," said a dealer, "in the Southern States. Since the close of the war, men once wealthy, but impoverished by the rebellion, have taken to the use of opium to drown their sorrows." In South America and California a large amount of opium is also consumed, owing to their great coolie population. It is further conceded that in certain quarters of this city, on Baxter, Division, Water, and other neighboring streets, it is used to an almost alarming extent. One retail druggist on Division street does a very large business in this line, retailing it in small quantities, from five cents a dose up, and every few moments poor, half-stupid men and women may be seen emerging from his rear door with cups and tin vessels containing the black paste which is to furnish them hours of forgetfulness. Some few manufacturers employ opium in the preparation of a bogus Turkish smoking tobacco or cheap cigars, which are mostly used by the Chinese.

A new oil-yielding fruit, known as Guzerat seed, has just been introduced into commerce from the East Indies. Extensive trials at a Dantzic oil-mill have given most satisfactory results, 2,000 lbs. of the seed yielding 730 lbs. of oil, or about 70 lbs. more than is obtained from the same weight of rape. Professor Birner is about to investigate the value of cake made from the seed as food for cattle.

The Maine State Pharmaceutical Association held a meeting at Portland on the 11th of July. Resolutions were adopted protesting against the existing laws governing the practice of pharmacy in the State, and the members of the drug trade within the State who had not already joined the Association were urged to become members. The existing officers of the Association were re-elected for another term, and are as follows: *President*, Charles K. Partridge, Augusta; *Vice-President*, A. G. Schlotterbeck, Portland; *Secretary and Treasurer*, H. Boynton, Biddeford. *Executive Committee:* H. G. Cummings, M. D., Portland; J. Q. A. Hawes, M.D., Hallowell; H. S. Harlow, Bangor; George Frye, Portland; A. G. Schlotterbeck, Portland; H. Boynton, Biddeford. *Business Committee:* John G. Cook, Lewiston; Seth D. Wakefield, Lewiston; A. Robinson, Auburn.

A committee of ten was appointed to suggest some plan for pharmaceutical legislation and report at the annual meeting. Another committee of five to revise the By-laws of the Society and Constitution will report at the same time. Thirty-five new members were elected.

On the first day of the meeting the gentlemen present were guests of the Portland druggists at a clam-bake, which was so successful that it was resolved that a social gathering of the same kind should take place every year, and a Committee on Annual Excursions was appointed to provide for it.

The bill of fare prepared for this occasion was quite an original conception, and filled with local "hits," which added to the fun and facilitated digestion.

One of the best puns of the occasion appeared in the report of proceedings by the daily paper, in which the members of the Association were referred to as the "Pillers of Society."

Neutral Salts.—*Punch* defines "neutral salts" as British sailors.

Prof. T. J. Heard has resigned the Chair of Materia Medica and Therapeutics and Clinical Medicine in the University of Louisiana, and

Prof. J. B. Eliot has been elected to fill the vacancy.

Sir Robert Christison has resigned the Chair of Materia Medica in the University of Edinburgh.

The German Apothecaries' Society has requested the Chancellor of the Empire to take the necessary steps for organizing a standing Pharmacopœia Commission, to consist of physicians, chemists, pharmacognosists, and pharmacists, to form a bureau of the national Bureau of Public Health. This commission is to subject the present Pharmacopœia Germanica to a revision, and afterwards to amend, augment or contract its scope whenever necessary. All propositions for changes of any kind are to be submitted to it, and it is to be the permanent guardian of the work.

Fast Tea-Ships.—The steamer Loudoun Castle, which arrived on the 3d of July in London, with the first cargo of the new tea-crop, made the voyage from Hankow to London in the short time of 38 days and 11 hours. This is the fastest time made by any sailing vessel running between China and England.

Rhamnus Frangula bark is likely to become a scarce article soon. Being in great demand for preparing charcoal for gunpowder in England, the bark is imported from Germany and is likely to run short.

The Kew Herbarium contains over a million of specimens of dried plants.

Iron-sponge Filters are recommended, even as superior to charcoal-filters for removing organic impurities from drinking water. They consist of spongy metallic iron, prepared without fusion, and remain much longer active than any other. They were first proposed by Prof. Gust. Bischof in Glasgow, and may be had from Leybold in Cologne, and E. Voss in Hamburg.

Mortars, Evaporating Dishes, and funnels of hard glass are manufactured by Julius Fahdt, Alma-works near Gr. Raeschen, Ober Lausitz, Germany.